

**FORUM OF PHYSICAL SCIENCE
TEACHERS
TELANGANA STATE**



**YEAR PLAN
PHYSICAL SCIENCES
8th CLASS**

Name of the teacher :
Name of the school :



Foreword

We are pleased to present this comprehensive material comprising Year Plans, Lesson Plans, and Period Plans developed by the Forum of Physical Science Teachers, Telangana State. This material has been thoughtfully prepared to serve as a valuable guide and support system for all Physical Science teachers across the state.

In the process of its development, we have drawn upon the expertise of subject experts, ensuring both academic rigor and practical classroom relevance. Every element of the material has been aligned with the SCERT Telangana guidelines, with a focus on competency-based education, experiential learning, and meaningful student engagement.

This initiative stems from our shared commitment to enhancing science teaching and learning. We believe that with proper planning and a structured approach, Physical Science Teachers can, not only achieve learning outcomes but also spark curiosity, scientific thinking and creativity among the students.

We hope this material empowers teachers to deliver Physical Science content with confidence, clarity, and creativity.

We have tried a lot to give this module error free but even it is found, bring to our notice. You need not to follow as it is, it is a model. You can change as per your feasibility. We look forward your kind suggestions to improve the module.

With best wishes from

Forum of Physical Science Teachers State Body

Telangana State

ANNUAL PLAN
8TH CLASS

ANNUAL PLAN

- 1) Class : VIII
- 2) Subject : Physical Science
- 3) Periods allotted for this subject per year : 123 (Instructional 111+Lab 12)
- 4) **Academic Standards**

Conceptual Understanding

- **Explains** force as a push or pull; identifies contact and non-contact types; fibers: nylon, rayon, polyester, acrylic; properties, uses of plastics; differentiates thermoplastics and thermosetting types; physical and chemical properties of metals and non-metals; compares their reactions with oxygen, water, acids; with examples sound production, propagation, and characteristics like frequency and pitch; reflection, absorption of sound; fossil fuel formation, types, uses; stresses conservation of natural resources; combustion process, types, ideal fuel traits; explains flame zones and calorific value; conduction of electricity in liquids; identifies good and poor conductors ; types of motion; uses distance-time graphs to show speed and velocity.
- **Differentiates** between : field forces and contact forces; regular and irregular reflection, Thermosetting a and thermoplastics; metal and non metals; stars and planets; natural fibers and synthetic fibers; real image and virtual image; Uniform and non uniform speed; Natural and artificial satellites; nonrenewable non renewable energy resources; etc.
- **Classifies:** field forces and contact forces; the material as metals and non metals based on their properties; Natural fibers and artificial fibers; fossil fuels.
- **Describes** effects of force on motion and shape; features of stars, planets, natural and artificial satellites; explains Moon phases and constellations;
- **Explains with causes**, factors of friction; suggests ways to control it; causes, safety measures for lightning and earthquakes; mentions role of charges and conductors;
- **Explains with examples** : metals and non metals; field forces & contact forces; Natural fibers artificial fibers;

Asking Questions and Making Hypotheses

- **Able to ask**; whether increasing force results in greater motion.; how surface type influences friction.; which fabrics are synthetic and which are natural.;; Rasins codes;; differences in conductivity and ductility of materials.;; how sound is produced and how it travels.; how light behaves when reflected from flat surfaces.;;k about the origin;; and availability of fossil fuels.;why electric switches make with thermoplastics.; consequence if plastic are not properly disposed.;;why metals are used to make jewels.
- **Able to predict** what influences the type of combustion.”whether all liquids conduct electricity.; why natural events like lightning and earthquakes occur.;why the positions of stars appear to change.; predict and represent motion using distance-time graph;;nature of the substance formed when metal and non metals react with water.:: consequences if fossil fuels are completely exhausted;;

Experiments and Field Investigation

- **Able to perform** activities using simple tools to observe how push or pull changes motion.;;perform the ;ab activity to find the limiting force that can be borne by a string;;
- **Perform the reaction** with metals and non metals;;perform activity for laws of .reflections;conduct experiment to find the effects of charged bodies which have been rubbed by different materials;; perform burn or solubility tests to compare material properties.;;test conductivity and reactions of substances with acids.;; perform sound-travel experiments using tuning forks, water, and solids.;; use ray trays and plane mirrors to study incidence and reflection of light.;;
- **Able to investigate** fossil fuel formation using models or videos.;; observe candle flame zones and identify conditions for complete and incomplete combustion.;; test electrical conductivity of various liquid solutions.;;demonstrate static electricity discharge and explain related safety measures;; observe shadows, track moon phases, and identify star constellations.; measure distance and time, and plot distance–time and velocity–time graphs.

Information Skills

- **Able to classify** different types of forces and present findings in structured formats;; gather data on force and motion and create comparative tables.;; classify the common uses of metals and chart their position in the reactivity series.

- **Able to gather data** on pitch, frequency, and amplitude and classify types of sounds.;;data on ignition temperatures and calorific values of fuels, **Able to collect data** to verify the laws of reflection using real-life examples.
- Able to classify the industrial uses and by-products of materials like plastics and dyes;;classify the ionic and molecular substances and compare their properties.;; classify the causes of lightning or tectonic plate movements and summarize them.
- **Able to classify** the celestial bodies and chart the phases of the Moon.;;classify the and compare variable and uniform motion using data and graphs.

Drawing Pictures and Making Models

- **Able to draw** all forces acting on the body , FBD diagram, able to draw magnetic field lines.;; draw diagrams or graphs to show how friction varies with surface type.;;forces acting on a book placed on table.;; label structures of synthetic fibers and identify plastic recycling symbols.;; draws universal recycling symbol, ;; draw diagrams of experiments such as acid-metal reactions.;; use wave diagrams to represent sound characteristics like pitch and amplitude.;; produce ray diagrams and label angles of incidence and reflection.;
- **Able to create** flowcharts showing steps in extraction and refining of metals.
- Able to sketch candle flame zones and label complete and incomplete combustion areas.
- **Able to draw** electric circuits and setups for testing conductivity of liquids.;; electroplating diagrams.
- **Able to map** the sequence of events during earthquakes and lightning strikes.
- **Able to create** diagrams of the solar system and phases of the Moon.
- **Able to label** axes on distance–time and velocity–time graphs and interpret slopes.

Appreciation and Aesthetic Sense

- **Able to relate** force concepts to daily activities like opening doors or playing sports;;reflect on how engineering uses force in machinery and tools.;; apply knowledge of friction to explain treads on shoes or vehicle tires.
- **Able to discuss** uses of fibers and plastics in clothing and packaging.
- **Able to appreciate** sound-based technology such as ultrasound in medicine and communication;; **appreciate** sustainable practices like responsible mining and corrosion prevention.; **appreciate** eco-friendly designs that reduce friction for energy efficiency.;; appreciate the role of early warning systems and safety planning.
- **Able to recognize** the role of mirrors in everyday objects like periscopes and home decor.

- **Able to reflect** on optical inventions (e.g., telescopes, cameras) as milestones in human progress.;**reflect** on ethical issues related to plastic pollution and recycling.;;reflect on astronomy as a result of human curiosity and exploration.
- **Able to discuss** dependence on fuels and the need for energy conservation.
- **Able to recognize** the social importance of fire control systems and safety measures.

Daily Life Application and Biodiversity

- **Able to apply** the concept of force to everyday actions like pushing furniture, opening jars, or playing sports.;
- **Able to recognize** how machines use applied force in daily tools like scissors, pumps, and bicycles.**Able to relate** light reflection to cameras, spectacles, and safety mirrors;; relate
- **Able to apply** the role of friction in walking, holding objects, and driving safely;; relate reduced friction to energy-saving designs in vehicles and machines.;; apply fiber knowledge when choosing clothing for comfort, weather, or purpose.;;
- **Able to recognize** the daily use of plastics in packaging, utensils, and storage—and its environmental impact.;;recognize corrosion in iron gates, pipes, and relate it to maintenance and safety
- **Able to apply** knowledge of metal and non-metal properties when selecting cookware, wires, or pipes.;; apply motion concepts in understanding vehicle speed, distance, and fuel efficiency.;; apply sound principles in music, alarms, and medical devices like stethoscopes.
- **Able to recognize** how sound is essential in communication—phones, microphones, or speakers;; apply mirror use in grooming, vehicles, home lighting, and decoration.;;recognize the use of speed-time graphs in transport planning and traffic safety;;astronomy to GPS, weather prediction, and understanding seasons;; **recognize** fuel use in cooking, transport, and electricity—and its impact on bills and pollution.;;apply combustion knowledge for safe handling of stoves, matchsticks, and gas cylinders.; recognize unsafe electrical practices at home and apply safe usage of electric appliances.;; apply conductivity knowledge in using RO purifiers, batteries, and bulbs.Able to recognize lightning and earthquake precautions to stay safe at home and school.;;o apply Moon phase knowledge in festivals, calendars, and night navigation.

Monthly wise Division of Lessons
Annual Plan – Class VIII Physical Science

Sl. No.	Chapter Name	Month	No. of Periods	Required Materials / CCE Activity
1	Force	June	10	Activities, written works
2	Friction	June	8	Activities, written works,project
3	Synthetic Fibers and Plastics	July	11	Activities, written works,project, slip test, FA1
4	Metals and Non-metals	July	12	Activities, written works,project,slip test, FA2
5	Sound	August	12	Activities, written works,project
6	Reflection of Light at Plane Surfaces	August	8	Activities, written works,project
7	Coal and Petroleum and Natural Gas	September	12	Activities, written works,project
8	Combustion Fuels and Flame	October	10	Activities, written works,project,Slip test, FA3
9	Electric Conductivity of Liquids	November	11	Activities, written works,project
10	Some Natural Phenomena	December	12	Activities, written works,project
11	Stars and Solar System	January	13	Activities, written works,project
12	Graphs of Motion	February	04	Activities, written works,project, slipt tests, FA 4

6. Teacher' Response

NAME OF THE UNIT/ LESSON	TEACHERS REFLECTIONS	SIGNATURE WITH DATE

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6. Suggestions of the Head Master

NAME OF THE UNIT/ LESSON	HM REFLECTIONS	SIGNATURE WITH DATE

LESSON PLANS

8th CLASS LESSON PLAN

1. UNIT / LESSON : 1. Force
2. Total Periods required : 10

3. Academic standards

Conceptual Understanding

- **Explains** force as a push or pull and its effect on motion and types of force, like contact force and field forces and able to give examples, ;
- **Explains** effects of force; ;
- **Explains** electrostatic force, magnetic force, gravitational force, with examples;
- **Finds** the net force of the applied force on objects with directions;
- **Gives reasons** for change the shape of the object;

Asking Questions and Making Hypotheses

- **Predict** how force affects object motion. "predict the distance forces ;
- **Imagine** the field forces

Experiments and Field Activities

- **Perform** simple force experiments using spring balances or rubber bands.
- **conducts** activity with magnet to show magnetic force, and electrostatic force;

Information and projects

- **Gather data** from observations and analyze changes in speed or direction.; Gather the information for the effect of force on shape of an object for permanent or temporary changes of the object.

Drawing Pictures and Making Models

- **Draw force** diagrams showing direction and contact.;
- **Draws FBD** for forces acting on the object;; draw magnetic field lines;

Appreciation and Aesthetic Sense

- **Appreciate** how forces act in everyday tools and machines; pressure phenomena .

Daily Life and Application and Biodiversity

- **Relate** force to vehicle movement, sports, and simple machines. finds net forces acts on body;

Period Wise Allotment

Period	Period-wise Content	Teaching Strategies	Resources / TLM	Assessment / Evaluation
1	1. Introduction to Force	Brainstorming daily life examples	Textbook, chart	1. Explain about force? 2. Give examples of force
2	2. Understanding Force	Hands-on activities and demonstration	Rope, spring balance	1. Explain force with an activity, 2. What changes can be produced by force
3	3. Types of Forces	Group activity with real examples	Stones, magnets, etc.	1. Mention the types of force 2. What is field force 3. Give two examples of field force,
4	4. Effects of Force	Experiment and discussion	Ball, rubber band	1. Give two examples of effects of force in day to day life 2. Draw a free body diagram (FBD) of a car
5	5. Contact Forces	Demonstration-based teaching	Objects for pushing/pulling	1. Mention the different types of contact force 2. Give examples for each contact force
6	6. Non-contact Forces	Magnet and static electricity demo	Magnets, comb	1. Mention the types of field forces, 2. Draw the diagram of magnetic field with a bar magnet
7	7. Balanced and Unbalanced Forces	Activity with spring and weights	Spring, weights	1. Mention material required in the experiment to find the limiting force that can be borne by a string. 2. Write the experimental procedure to find the limiting force that can be borne by a string
8	8. Friction –	Simple experiments	Smooth/rough surfaces	1. Is there any force acting against the force? 2. Give few examples of friction force
9	9. What force can do? And pressure	Simple activities	Real-life situations	1. What changes does a force can do on objects 2. Give few examples that force can effects on objects 3. Explain the pressure
10	10. Recap and Evaluation	Summary, mind map	Chart, blackboard	Grand test can be conducted from improve your learning Slip tests

TEACHER'S NOTES

PERIOD NO.	TEACHERS REFLECTIONS	SIGNATURE WITH DATE

Reflection of Teacher :

PERIOD NO.	TEACHERS REFLECTIONS	SIGNATURE WITH DATE

8th CLASS LESSON PLAN

1. UNIT / LESSON : 2. Friction

2. Total Periods required : 08

3. Academic standards

Conceptual Understanding

- **Explains** the causes and effects of friction. ;Explains the advantages and disadvantages of friction in daily life. ;Explains the meaning of friction and how it acts between two surfaces.
- **Identifies** the types of friction – static, sliding, rolling, and fluid friction.
- **Knows the factors** affecting friction (nature of surfaces, weight, etc.).
- Differentiate between sliding friction and rolling friction.

Asking Questions and Making Hypotheses

- **Hypothesize** how surface types affect friction.
- **Predicts** what happens if friction is reduced/increased in a given situation.

Experiments and Field Activities

- Children are able to perform experiments using inclined planes and various materials.
- Conducts simple experiments to observe friction using chalk, wooden blocks, sandpaper, etc.
- Measures and compares frictional forces on different surfaces.
- Uses inclined planes or spring balances to investigate friction.

Information Skills

- Collects and records data from observations during experiments and able to explore ways to reduce/increase friction.
- Communicates findings through tables, graphs, and simple reports.

Drawing Pictures and Making Models

- Draws labeled diagrams of forces acting during friction. Understands diagrams showing direction of frictional force.
- Uses arrows to show forces in diagrams.
- Draws the FBD for the given situation.

Appreciation and Aesthetic Sense

- Appreciates the role of friction in daily life: walking, writing, driving, etc.
- Shows awareness about safety related to friction (e.g., importance of grip in tires).

Daily Life Application and Biodiversity

- Children are able to relate friction to walking, cycling, and safety tools.
- Suggests ways to reduce or increase friction when needed (lubricants, roughening surfaces).
- Explains how friction helps in walking, writing, driving, and stopping vehicles. Relates types of friction (static, sliding, rolling, fluid) to real-world examples.
- Solves problems based on friction in practical contexts
- Reducing unnecessary friction in engines and machines saves fuel and energy.
- Acknowledges the role of maintenance (oil/lubricants) in conserving machine life and resources.
- Aware that excessive use of lubricants can pollute soil and water.
- Encourages the use of biodegradable or environmentally safe lubricants. Observes how animals adapt to increase/decrease friction (e.g., claws, padded feet, skin texture).
- Appreciates nature's balance in controlling friction for movement and survival.

Period wise allotment

Period	Period-wise Content	Teaching Strategies / Activities	Resources / TLM	Assessment / Evaluation
1	1. Introduction to Friction	Brainstorming, discussion of real-life examples	Textbook, blackboard	1. What is force 2. Give few real life examples of friction
2	2. Causes of Friction	Demonstration with surfaces	Wood blocks, sandpaper	1. Explain the friction with an activity
3	3. Types of Friction	Group activity and explanation	Various surfaces, weights	1. Mention the different types of frictional force 2. How may forces act on the book when it pushed on the table
4	4. Sliding and Rolling Friction	Experiment-based learning	Ball, toy car, ramp	1. Write an activity for sliding friction 2. Give few examples of sliding and rolling friction
5	5. Factors Affecting Friction	Hands-on investigation	Inclined plane, weights	1. Draw a free body diagram to show various forces acting on a body which is sliding on an inclined plane.
6	6. Advantages of Friction	Discussion and examples	Images, examples	1. Explain few advantages of friction in day to day life
7	7. Disadvantages of Friction	Debate and explanation	Chart paper	1. Write few disadvantages of frictional force in daily life situations
8	8. Methods to Reduce Friction fluid force and factors influencing fluid force	Demonstration and student activity Classroom discussion	Oil, water, powder Glass, water, paper for making aeroplane	1. How can we reduce friction 2. What happens if we do not reduce friction in machines 3. Which force is responsible for stopping the rotation of the water when water is stirred with spoon in a glass.

4. Teacher Notes :

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5. Reflection of Teacher :

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8th CLASS LESSON PLAN

1. UNIT / LESSON : 3. Synthetic Fibers & Plastic
2. Total Periods required : 11

3. Academic standards

Conceptual Understanding

- Children are able to identify types of synthetic fibers like nylon, rayon, polyester, and acrylic.
- Explains the different types of synthetic fibers like rayon, nylon, polyester, and acrylic.
- Differentiate between natural and synthetic fibre and explain the properties, uses, and environmental effects of plastics.
- Classification of plastics into thermoplastics and thermosetting plastics.

Asking Questions and Making Hypotheses

- Hypotheses related to the properties of fibers and plastics, like their strength, durability, and environmental impact.
- Questions to understand the preparation of artificial fibers

Experiments and Field Activities

- Observe and investigate common plastic items at home and in their surroundings,
- Observe fiber texture and burning behavior under teacher supervision.
- Conducts simple experiments to compare synthetic and natural fibres in terms of water absorption, elasticity, and burning behavior.

Information Skills

- Collects information from books, internet, or surroundings about synthetic materials and shares it effectively.
- They tabulate recycling symbols found on plastic items and communicate their findings using charts, tables, or simple reports.

Drawing Pictures and Making Models

- Draw diagrams of fiber structures.
- Draws flowcharts showing the production of synthetic fibres, and diagrams comparing thermoplastics and thermosetting plastics. They can also read and interpret such

diagrams and symbols.

Appreciation and Aesthetic Sense

- Appreciate the role of synthetic materials in modern life. appreciates the usefulness of synthetic fibres and plastics in modern life but is also sensitive to their environmental impact.
- Promote reduce–reuse–recycle-recover (4R) practices and support the idea of minimizing plastic pollution through proper disposal and alternatives to single-use plastics.

Daily Life Application and Biodiversity

- Promote alternatives to plastic use for environmental safety.
- Apply advantages and disadvantages of plastics in day to day. Applies their understanding to explain the wide usage of synthetic fibres and plastics in clothing, packaging, utensils, and other daily items.
- Suggest when and why to prefer natural alternatives and how to responsibly use synthetic materials.

Period wise allotment

Period	Content	Teaching Strategies	Teaching Learning Material (TLM) / Resources	Evaluation / Assessment
1	Introduction to synthetic Fibers – Natural vs Synthetic	Brainstorming, Discussion, samples	Charts showing natural and synthetic Fibers, Samples	1. Why do we use fibers 2. Give some examples of synthetic fibers 3. Give examples for natural fibers
2	Types of synthetic Fibers: Rayon	Explanation with daily life examples	Rayon samples, Flowchart	1. Which synthetic fiber is called artificial silk 2. How do rayon is made of 3. Where do we use rayon in our daily life situations
3	Types of synthetic Fibers: Nylon	Demonstration, Chart	Nylon thread, Rope, Daily use items	1. which type of fiber does nylon is? 2. Explain uses of nylon in day to day life. 3. How does nylon fibers are made of
4	Types of synthetic Fibers: Polyester and Acrylic	Comparison, Group activity	Samples of polyester and acrylic items	1. why do we call acrylic is an artificial wool 2. Give few examples of polyester and acrylic materials

				3. How does acrylic is made of 4. 1. how many codes of resins and what are they
5	Characteristics of synthetic Fibers	Tabular comparison with natural Fibers	Charts, Table on board	1. Explain the characteristics of the synthetic fibers 2. Why does laundry men keep labels on the clothes
6	Plastics – Introduction and types	Demonstration of items, Classification Flame test for thermoplastics and thermosetting plastics	Plastic items – thermoplastics and thermosetting	1. Give few examples of plastics in day to life 2. Where do we use it 3. Write the experimental procedure for testing thermoplastics and thermosettings 4. Give few examples for thermoplastic and thermosettings
7	Properties of plastics	Explanation, Real-life examples	Plastic containers, Insulating materials	1. Write the characteristics of the plasticess 2. How does the plastic made of
8	Plastic and environment – Non-biodegradability	Discussion, Case studies	Pictures, News reports	1. How does the plastic make harm to the environment 2. What are the disadvantages of plastic
9	Hazards of plastic use	Debate, Group discussion	Videos, Articles	1. How does the plastic damages the biodiversity 2. Explain bio degradable and non biodegradable materials.
10	Measures to reduce plastic pollution	Group project, Role play	Posters, Reduce-Reuse-Recycle chart	1. Explain 4R principle 2. Draw the universal recycling symbol
11	Revision and concept map	Concept mapping, Recap quiz	Blackboard, Charts	Recapitulate and discuss on improve your learning questions.

4. Teacher's Notes :

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5. Reflection of the Teacher :

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8th CLASS LESSON PLAN

1. UNIT / LESSON : 4. Metals & Non-metals

2. Total Periods required : 12

3. **Academic standards**

➤ **Conceptual Understanding**

➤ Understands the general physical and chemical properties of metals and non-metals such as lustre, hardness, malleability, ductility, conductivity, and reactivity with air, water, and acids.

➤ Differentiate between metals and non-metals based on these characteristics and cite examples.

➤ **Asking Questions and Making Hypotheses**

➤ Hypotheses about chemical reactions involving metals and non-metals, and their behavior in different conditions.

➤ Imagine the human life without metals.

➤ **Experiments and Field investigation**

➤ Able to perform experiments testing conductivity, luster, ductility, and reactions with acids/water. performs simple experiments to observe the reaction of metals with air, water, and dilute acids.

➤ Test the physical properties of materials such as conductivity, hardness, and appearance, and draw conclusions from their observations.

➤ **Information Skills**

➤ Able to gather information on metal uses in different industries. Gathers and organizes information from textbooks, experiments, and everyday materials about metals and non-metals.

➤ **Drawing Pictures and Making Models**

➤ Children are able to draw comparative diagrams of properties. Draws diagrams to show experimental setups like metal–acid reaction or conductivity testing circuits.

➤ Interpret tables or flowcharts comparing properties of metals and non-metals.

➤ **Appreciation and Aesthetic Sense**

➤ Appreciates the importance of metals and non-metals in daily life and industry. They

show awareness about the conservation of resources and the environmental effects of excessive mining or improper disposal of materials.

➤ Support the use of eco-friendly practices.

➤ **Daily Life Application and Biodiversity**

Applies the concepts to explain the use of metals in utensils, wires, machinery, and the use of non-metals like oxygen, carbon, and sulphur in medicines, fertilizers, and industries.

Period wise allotment

Period	Content	Teaching Strategies	Teaching Learning Material (TLM) / Resources	Evaluation / Assessment
1	Introduction to metals and non-metals	Brainstorming, Discussion	Samples of metals and non-metals, Charts	1. Give name some objects made of metals 2. Prepare a list of material of your kitchen.
2	Physical properties of metals	Demonstration, Observation	Metal samples, Hammer, Electric wires	1. Explain the physical properties of the metals 2. Do all metals are lustrous 3. Mention malleable materials 4. Explain about ductility and electric conductivity
3	Physical properties of non-metals	Hands-on activity, Comparison	Non-metal samples, Charts	1. Write physical properties of the non metals 2. Give some examples of non metals
4	Chemical properties: Reaction with oxygen	Experimentation , Explanation	Burning spoon, Magnesium ribbon	1. Write the experimental procedure for the reactions of oxygen with metals and non metals.
5	Chemical properties: Reaction with water	Demonstration, Group discussion	Sodium, Magnesium, Water	1. Explain the how does metals react with water.

6	Chemical properties: Reaction with acids	Laboratory activity, Analysis	Dil. HCl, Zn, Fe, test tubes	1. Explain the experiment with metals for the reaction with acids
7	Displacement reactions	Experiment, Chart preparation	CuSO ₄ , Iron nails	1. Write the experimental procedure for reactivity on metals.
8	Uses of metals and non-metals	Discussion, Case studies	Daily life items, Chart	1. Write the uses of metals in day to day life 2. Write the uses of non metals in daily life situations.
9	Corrosion and prevention	Video, Demonstration	Rusty iron, Oil paint, Coating materials	1. Explain corrosion and how do you prevent it
10	Recycling of metals and environmental concerns	Debate, Poster making	Recycling chart, News clippings	1. Why is recycling of metals important for protecting the environment and conserving natural resources? 2. What are the harmful effects of extracting metals from ores on the environment, and how does recycling help reduce these effects? 3. How can individuals and communities contribute to metal recycling, and what challenges might they face in doing so?
11	Revision and concept map	Recap, Mind map Creation	Blackboard, Chart papers	
12	Summative Assessment	Written test	Question paper	

4. Teacher Notes :

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5. Reflection of Teacher :

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8th CLASS LESSON PLAN

4. UNIT / LESSON : 5. Sounds

5. Total Periods required : 12

6. **Academic standards**

➤ **Conceptual Understanding**

- Understands that sound is produced by vibrations and requires a medium to travel. They learn about the characteristics of sound such as pitch, loudness, frequency, amplitude, and wavelength.
- Differentiate between musical sound and noise, and understand the speed of sound in different media (solid, liquid, gas).

Asking Questions and Making Hypotheses

- Hypotheses about how sound behaves in various environments and what affects its properties.

➤ **Experiments and Field investigation**

- Children are able to conduct experiments with tuning forks, rubber bands, and drums or metal plates.
- Investigate sound transmission through different materials and conduct experiments to understand vibration and resonance.

➤ **Information Skills**

- Collects and presents information about sound from textbooks, surroundings, and digital media.
- Communicate results through presentations or discussions on scientific terms like frequency, vibration, echo,.

➤ **Drawing Pictures and Making Models**

- Draws diagrams showing wave forms of sound, parts of the human ear, and experimental setups like vibrating rulers or sound box models.
- Interpret graphs showing amplitude vs. time or frequency comparisons.

➤ **Appreciation and Aesthetic Sense**

- Children are able to value sound in communication and music.

➤ **Daily Life Application and Biodiversity**

- Applies their understanding to explain real-life situations such as the working of musical instruments, hearing, soundproofing in rooms, use of stethoscopes, and mobile phones
- Prevents the noise pollution in their environment.

Period wise allotment

Period	Content	Strategies	Resources / TLM	Evaluation
1	Introduction to Sound	Brainstorming, discussion	Charts, bell, tuning fork	1. Make a list of sounds that you get to hear in your surroundings
2	Production of Sound	Demonstration using tuning fork	Tuning fork, rubber pad	1. How does the sound produce 2. Give some examples that material produce sound
3	Propagation of Sound, sound has energy	Group activity, explanation	Slinky spring, diagrams	1. Write an activity that prove sound has energy 2. How does sound propagate 3. Draw the structure of larynx or voice box
4	Sound Needs Medium,	Experiment and observation	Vacuum jar video/demo	1. does sound travel only in air 2. Does sound travel solids and liquids 3. How can you prove that sound needs medium to propagation
5	Characteristics of Sound – Pitch, amplitude	Interactive examples	Mobile apps, speakers	1. explain about pitch 2. What is amplitude 3. Write the experimental procedure to identify the pitch of a sound

6	Speed of Sound in Different Media	Compare and contrast, data analysis	Table/chart	<ol style="list-style-type: none"> 1. Do the speed of the sound is same in all medium 2. Which medium does speed of the sound is high
7	Reflection of Sound – Echo	Live demonstration, problem solving	Wall, stopwatch	<ol style="list-style-type: none"> 1. What is reflection of sound 2. Does sound reflect.explain with an activity 3. Explain about echo.
8	Human Ear – Working	Diagram labelling, explanation	Ear model/chart	<ol style="list-style-type: none"> 1. Draw the diagram of human ear 2. How does ear functions
9	Uses of Sound – SONAR, Communication	Multimedia presentation	Videos, models	<ol style="list-style-type: none"> 1. Write the uses of sound 2. How does SONAR system helps to find the objects in the deep sea
10	Noise and Music	Debate and discussion	Audio samples	<ol style="list-style-type: none"> 1. what is the difference between noise and music 2. Give few names of musical instruments.
11	Noise Pollution – Causes and Effects	Case study method	Newspaper clippings, videos	<ol style="list-style-type: none"> 1. write the effects of sound pollution 2. How can we prevent sound pollution
12	Revision and Assessment	Recapitulation written test	Charts, digital videos.	Improve your learning question to be discussed

4. Teacher's Notes :

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5. Reflection of the Teacher :

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8th CLASS LESSON PLAN

1. UNIT / LESSON : 6. Reflection of Light at Plane Surfaces

2. Total Periods required : 8

3. Academic standards

➤ **Conceptual Understanding**

- Understands the basic laws of reflection — the angle of incidence is equal to the angle of reflection, and the incident ray, reflected ray, and normal lie on the same plane
- Identify the characteristics of images formed by plane mirrors such as being virtual, erect, and laterally inverted.
- Explain about multiple reflections and real-life examples of periscopes and kaleidoscopes.

➤ **Asking Questions and Making Hypotheses**

- Hypothesize changes in reflection with surface smoothness.
- predicting the nature and position of images in different mirror setups.

➤ **Experiments and Field investigation**

- Conducts experiments to verify the laws of reflection using ray boxes, mirrors, and protractors.
- Observe image formation using plane mirrors, try out arrangements with multiple mirrors, and record their observations.
- Explore field-based devices like periscopes or rear-view mirrors

➤ **Information Skills**

- Gathers and organizes information about mirrors, image formation, and real-world optical devices from textbooks and media.
- Present their understanding through clear explanations, diagrams, and descriptions, using proper scientific vocabulary such as “virtual,” “lateral inversion,” “normal,” and “angle of incidence

➤ **Drawing Pictures and Making Models**

- Draws neat and labeled ray diagrams showing reflection from a plane mirror.
- Represent incident and reflected rays with correct angles, normals, and arrow marks.
- Interpret diagrams involving periscopes, kaleidoscopes, and multiple reflections.

- **Appreciation and Aesthetic Sense**
- Appreciates the usefulness of reflection in technology, safety, and design.
- They understand the importance of using mirrors properly in homes and vehicles for safety and visual clarity.
- Show curiosity and respect for the scientific principles involved in light behavior and its applications.
- **Daily Life Application and Biodiversity**
- Relates the concept of reflection to daily-life applications such as mirrors in bathrooms, dressing tables, vehicles (rear-view and side mirrors), and security systems.
- Understand the role of reflection in devices like periscopes and kaleidoscopes used in submarines and optical toys

Period wise allotment

Period	Content	Strategies	Resources / TLM	Evaluation
1	Introduction to Light and Reflection	Brainstorming, discussion	Torch, mirror, chart	1. what do we need to form a shadow 2. How does light travel 3. Explain reflection of light
2	Laws of Reflection	Demonstration, explanation	Plane mirror, laser pointer	1. explain laws of reflection 2. If incident angle is 45° what will be the reflected angel
3	Ray Diagrams – Incident and Reflected Rays Formation of image by pinhole camera	Drawing and analysis Activity 1	Mirror, scale, pencil, Candle, black paper, translucent paper, two plastic pipes different diameter	1. draw the ray diagram of the formation of an image in a pinhole camera 2. What would happen if two or three are made on the pinhole camera
4	Pierre de Fermat principle, and shortest distance	Explaining and interaction	Chart, digital medium	1. write pierre de Fermat prionciple 2.
5	Plane mirrors, multiple images	Demonstration and interaction,activity	plane mirrors,white	1. How do we represent plane

			cordboard	mirror in diagram 2. Which metals used as thin layer as reflecting surface backside of the mirror.
6	Verification of laws of reflection	Experiment, interaction	Mirror strip, drawing board, white paper, pins, clamps, scale and pencil.	1. What are the required material in the experiment to verify laws of reflection 2. Explain the experimental procedure while doing the experiment to verify the laws of reflection.
7	Formation of an image by plane mirror Characteristics of the image formed by the plane mirror.	Demonstration and interaction , group work	Chart, cordboard, digital medium ,	1. Draw the image diagram of a point object formed by a plane mirror 2. Draw the image diagram of letter "J"
8	Uses of Plane Mirrors in Daily Life	Group discussion, examples	Images, models	1. write the uses of plane mirrors in day to day life 2. What would happen if plane mirrors are not invented. guess and write.

4. Teacher Notes :

PERIOD NO.	TEACHERS REFLECTIONS	SIGNATURE WITH DATE

5. Reflection of Teacher :

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8th CLASS LESSON PLAN

1. UNIT / LESSON : 7. Coal Petroleum and Natural Gas

2. Total Periods required : 12

3. Academic standards

➤ Conceptual Understanding

➤ Understands that coal, petroleum, and natural gas are fossil fuels formed over millions of years from dead organisms buried under the earth. Understand terms like fossil fuel, non-renewable resource, and petrochemicals.

➤ Explain about the composition, extraction, refining, and uses of these fuels.

➤ Differentiate between renewable and non renewable energy resources

➤ Asking Questions and Making Hypotheses

➤ Hypotheses related to fuel consumption, alternative fuels, and energy conservation.

➤ Experiments and Field Investigation

➤ Conduct simple classroom activities to observe the burning characteristics of different fuels (e.g., candle, kerosene, LPG, CNG).

➤ Investigate how fuel is used in their homes, identify petroleum-based products, and record findings through surveys or observations.

➤ Information Skills

➤ Collects information about fossil fuel formation, reserves, fuel usage patterns, and petroleum products from textbooks, news articles, or the internet.

➤ Interpret this information through written reports, charts, and presentations using correct scientific terms

➤ Drawing Pictures and Making Models

➤ Draws diagrams or flowcharts showing the formation of fossil fuels, stages of petroleum refining, or layers of the earth containing coal and oil.

➤ Interpret diagrams related to fuel extraction and usage.

➤ Appreciation and Aesthetic Sense

➤ Appreciates the importance of fossil fuels in development while being aware of their limited availability.

➤ Recognize the harmful effects of burning fossil fuels—like air pollution, global warming,

and acid rain—and support the use of alternative and renewable energy sources.

- Show a responsible attitude toward saving fuel and protecting the environment
- **Daily Life Application and Biodiversity**
- Relates fossil fuels to daily activities like cooking, transport, electricity generation, and industry.
- Efficient usage in daily life of fuel conservation
- Identify petrochemical-based products like plastics, detergents, and synthetic fibres

Period wise allotment

Period	Content	Strategies	Resources / TLM	Evaluation
1	Introduction to Natural Resources	Discussion, brainstorming	Charts, globe	1. Give some example for natural resources
2	Types of Natural Resources	Classification activity	Flashcards, chart	1. explain about exhaustible resources 2. Explain about inexhaustible resources 3. Do we have unlimited supply of natural resources
3	Coal – Formation and Uses	Storytelling, explanation	Coal samples, video	1. Explain how does coal form 2. Mention the uses of coal in daily life
4	Petroleum Refining and Products	Explanation with flowchart	Flowchart, PPT	1. Explain the process of refining of petroleum 2. Mention few products of coal and petroleum
5	Coal Products – Coke, Coal Tar, Coal Gas	Table/chart preparation	Sample images	1. write the uses of coal and its products.
6	Burning the coal , lab activity	Experiment,demonstration,	Coal, boiling tubes, rubber corks,iron stands,	1. Explain the procedure in the experiment to

			delivery tube, jet tube, Bunsen burner,	show that when we heat high quality coal evolves gas burns.
7	Petroleum – Formation, why are coal and petroleum are versatile	Narrative with visuals	Videos, animation	1. Explain about fossil fuels 2. Where does we found petroleum 3. What is the difference between coal and petroleum
8	Conserving coal and petroleum	Real-life examples	Newspaper clippings	1. what will happen if we don't conserve the coal and petroleum
9	Misuse of energy resources and consequences	Discussion, interaction ,	Plastic samples, list	1. Can you give some examples where energy resource are misused in our daily life 2. Suggest few alternative ways to save the fuel resources 3. How is biodiversity affected by excessive use of fossil fuels.
10	Harmful effects caused during use of fuels	Debate, discussion	News articles, digital medium	1. explain how harmful effects caused during use of fuels.
11	Alternative Fuels and Future Needs	Project work, research	Internet resources, books	Project work
12	Revision and Assessment	Quiz, test	Flashcards, question bank	Discussion on improve your learning questions.

4. Teacher's Notes :

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8th CLASS LESSON PLAN

1. UNIT / LESSON : 8. Combustion of Fuels and Flame
2. Total Periods required : 10
3. **Academic standards**

➤ **Conceptual Understanding:**

➤ **Understands** the meaning of **combustion**, the types of combustion (rapid, spontaneous, and explosive), and the essential conditions required for combustion—fuel, heat, and oxygen.

➤ **Explains** about different types of **fuels** (solid, liquid, gas), characteristics of an ideal fuel, and the structure of a **flame** including its different zones and their temperatures.

➤ **Asks Questions and Hypothesizes:**

➤ Asks questions like “Why does a candle flame have different zones?”, “Which fuel produces the least smoke?”, or “Why does blowing air stop the flame?”

➤ Hypothesises such as “More oxygen leads to better combustion” and test them through observation or simple classroom activities.

➤ **Experimentation and Field Investigation:**

➤ Performs simple experiments to show combustion using candles, matchsticks, or spirit lamps.

➤ Observe flame color, smoke, and heat in different combustion processes.

➤ Investigate the presence of unburnt carbon in a yellow flame and the clean burning of LPG or alcohol.

➤ **Information Skills and Communication:**

➤ Gathers information about types of fuels, their calorific values, and pollutants produced from various sources such as wood, kerosene, petrol, and LPG.

➤ Present their findings clearly using scientific vocabulary like ignition temperature, inflammable substances, and pollution.

➤ **Drawing and Reading Diagrams:**

➤ Draws and labels diagrams of a candle flame showing the different zones (luminous, non-luminous, and dark zone).

- They also interpret charts or tables comparing different fuels based on efficiency and pollution caused.
- **Appreciation and Environmental Awareness:**
- Appreciates the role of fuels in modern life while recognizing the environmental impact of burning fuels.
- Aware of the harmful effects of smoke and toxic gases, support the use of clean fuels like LPG and biogas, and advocate for energy conservation and pollution control.
- **Application in Daily Life:**
- Relates the concept of combustion to everyday uses such as cooking, heating, and vehicles.

Period wise allotment

Period No	Content	Teaching Strategies / Activities	Resources / TLM	Evaluation
1	Introduction to Combustion	Brainstorming session, examples from daily life	Pictures/videos of burning fuels	1. Do all material combust. 2. Give few examples material burns and do not burns.
2	Testing the necessity of air for burning	Activity, demonstration.	Candle, glass, match stick, ,	1. how can you prove that air is needed to burn a material
3	Lab activity- oxygen helps to burning	Demonstration, activity base	Test tube, potassium permanganate, spirit lamp agarbatti, holder	1. Explain the procedure to prove that oxygen helps to burning the material
4	Ignition Temperature Understand the ignition temperature.	Demonstration using paper and kerosene	Various fuels, thermometer	1. Explain ignition temperature 2. Can you burn paper without the help of flame. 3. Why do we use paper or kerosene oil to start fire in wood or coal.

5	Types of Combustion	Explain rapid, spontaneous, explosion with demonstrations	Matchsticks, camphor, crackers	<ol style="list-style-type: none"> 1. mention the types of combustion 2. Write the difference between spontaneous combusting and rapid combustion
6	Fuels and their Types	Classification of fuels: solid, liquid, gas	Chart showing fuel types	<ol style="list-style-type: none"> 1. How do we use fuel in day to day life. 2. Classify the fuels into solid, liquids, and gas
7	Calorific Value,	Define and explain with examples	Data chart of different fuels	<ol style="list-style-type: none"> 1. Explain calorific value 2. How does calorific value is measured. 3. Mention the calorific value of LPG, CNG, PETROL, KEROSENE.
8	Fuel control	Demonstration, explanation ,	Videos, digital medium, chart	<ol style="list-style-type: none"> 1. How do you decide the best fuel among petrol and CNG 2. What is the criteria to decide a best fuel.
9	Candle Flame Structure	Demonstrate and label different zones	Candle, pin, slide	<ol style="list-style-type: none"> 1. Draw the diagram of flame structure 2. Which part of the flame has more heat. 3. Mention the different zones of the candle flame
10	Revision	Mind mapping - recap	Charts and videos	Discussion on improve your learning questions.

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8th CLASS LESSON PLAN

1. UNIT / LESSON : 9. Electric conductivity of liquids
2. Total Periods required : 11
3. **Academic standards**

➤ **Conceptual Understanding:**

- Understands that some liquids can conduct electricity while others cannot.
- Explains the difference between good and poor conductors of electricity among liquids, and the concept of chemical effects of electric current.

- Give reasons that electric conductivity will not be for all liquids

➤ **Asks Questions and Hypothesizes:**

- Hypothesises such as “Liquids with dissolved salts are better conductors of electricity.”

➤ **Experimentation and Field Investigation:**

- Performs simple experiments using a tester made with a bulb, battery, and electrodes to test the conductivity of various liquids like tap water, saltwater, lemon juice, distilled water, oil, etc.
- Observe whether the bulb glows or not and draw conclusions based on their observations.

➤ **Information Skills and Communication:**

- Collects information about electrical conductivity, ions in solutions, and examples of good and poor conducting liquids
- .Communicate their findings using correct scientific terms such as conductor, electrolyte, insulator, ion, and electrodes through written work, discussions, and presentations.

➤ **Drawing and Reading Diagrams:**

- Draws neat diagrams of the experimental setup for testing the conductivity of liquids using a tester.
- Label parts like battery, wires, bulb, electrodes, and the liquid sample correctly.
- Interpret diagrams showing the movement of ions during electrolysis.

➤ **Appreciation and Environmental Awareness:**

- Appreciates the scientific principle behind the use of liquids in electrical circuits.
- Aware of the risks associated with using electrical devices near conductive liquids and advocate safe practices.

- Recognize the importance of clean water and the dangers of chemical contamination affecting water conductivity
- **Application in Daily Life:**
- Relates the concept to real-life applications such as electroplating, water testing, and the use of acids and bases in batteries.
- Apply knowledge on using conducting liquids in electrical processes and safe handling of electrolytic substances.

Period wise allotment

Period No	Content	Teaching Strategies / Activities	Resources / TLM	Evaluation
1	Introduction to Conductivity	Discussion on conductors and insulators	Daily life examples	1. do all material conduct the current 2. Give few examples which material which conducts current in it
2	Electricity in Solids vs. Liquids	Compare solids and liquids as conductors, activity 1	Copper wire, distilled Water, Cell, connecting wires, switch	1. What are the material needed to make a electric circuit 2. How do you test different types of material which are good conductor or poor
3	Experiment: Conductivity of liquids	Activity with LED/bulb setup	Battery, bulb, wires, water, coconut oil, lemon juice, vinegar, kerosene, vegetable oil, sugar solution	1. All the liquids glow the LED 2. Mention good and poor conductor of liquids
4	When do liquid conduct electricity	Activity with LED-bulb	Water, salt, copper sulphate, lemon juice, detergent, distilled water	1. list out the material that LED glows

5	Electric conductivity of electrolyte	Activity,	Different liquids	1. Explain the activity to conductivity of electric current in the liquids
6	Chemical Effects of Electric Current	Demonstration , activity		1. What do you observe when current passes through potato
7	Testing the effect of electric current on potato	Demonstration , activity	Beaker, electrodes, potato	1 Draw the diagram of testing of electric current on potato 2. Does the LED glow on potato
8	Electrolytic cell	Activity, digital medium	Copper, zinc, LED, connecting wire, dil sulphuric acid	1. how do you make your own cell 2. Mention the electrodes in the cell 3. Mention the electrolyte used in the cell
9	Electroplating Process Lab activity	Explain and demonstrate simple electroplating	Copper strip, iron nail	1. Draw the diagram of electroplating 2. Write the observations in the experiment of electroplating 3. Mentioned required material in electroplating experiment.
10	Uses of Electroplating	Discussion on real-life applications	Objects with plating	1. Mention the uses of electroplating in day to day life. 2. Where does electroplating is widely used.
11	Revision and Assessment	Conduct quiz, written	Prepared question	Discussion on improve your learning questions

		test	papers	

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8th CLASS LESSON PLAN

1. UNIT / LESSON : 10. Some Natural Phenomena

2. Total Periods required : 12

3. Academic standards

➤ **Conceptual Understanding:**

- Explains natural phenomena such as **lightning, static electricity, and earthquakes.** understand the structure of the earth, how earthquakes occur, and the importance of the Richter scale.

➤ **Asks Questions and Hypothesizes:**

- The student raises questions like “Why do we see lightning before hearing thunder?”, “What causes an earthquake?”, or “Can we prevent lightning strikes?”
- Hypotheses such as “Objects made of insulating materials can hold static charge” and test or explore them through observation and discussion.

➤ **Experimentation and Field Investigation:**

- Performs simple experiments to demonstrate static electricity using combs, balloons, or plastic rulers.
- Explore charge interactions and try to create small-scale sparks in controlled settings.
- They may simulate or model earthquake waves using slinky springs or observe seismograph recordings.

➤ **Information Skills**

- Gathers information about famous lightning safety practices, earthquake-prone zones, and disaster management techniques.
- Communicate their understanding through project work, posters, discussions, and presentations using correct terms like conductor, insulator, seismic waves, and epicenter.

➤ **Communication through Drawing :**

- Draws diagrams showing electric charges, lightning formation, lightning conductors, and seismograph instruments.

- Interpret charts showing earthquake magnitude and models depicting layers of the earth and fault lines.
- **Appreciation and Environmental Awareness:**
- Appreciates the role of scientific understanding in predicting and reducing the impact of natural disasters.
- Aware of the need for environmental protection, disaster preparedness, and the importance of respecting natural forces and educating communities about safety measures
- **Application in Daily Life:**
- Applies their understanding to real-life safety precautions during lightning and earthquakes. They understand the function of lightning rods, grounding, and construction guidelines in seismic zones.
- Relate static electricity to daily experiences such as clothes sticking or shocks from door handles.
- **Period wise allotment**

Period No	Content	Teaching Strategies / Activities	Resources / TLM	Evaluation
1	Introduction to Natural Phenomena	Discussion with examples like earthquakes, Lightning	Images, videos	1. mention few natural phenomenon 2. When do we see lightning
2	Lightning and its Causes	Explanation using diagrams and animation	Static electricity kit, balloons	1. How does lightning occurs 2. Why does hair attract towards the clothes
3	Story of Lightning	Narration and role play	Story cards, visual aids	1. how do we understand the nature of the charge 2. Why is the plastic scale not able to attract pieces of paper before it gets rubbed by dry hair.

4	Electroscope and Charge Lab activity	Demonstration with Electroscope, experiment	Simple electroscope model	1. explain an activity that effect of rubbing 2. Do the object like refill or comb attract pieces of paper only after rubbing
5	Types of Charges and Their Interaction	Activity-based learning with comb and paper	Comb, paper bits, plastic rod	1. In this balloon activity do they attract each other or repel each other
6	Finding the presence of charge on a body	Hands-on demo with different materials	Thermocol ball, silver foil, stand	1. write the process to find the presence of charge on a body
7	Lightning Safety Measures	Discussion and poster creation	Posters, safety symbols	1. Which is the safe place during a thunder storm 2. Which is not safe place during thunder storms occur.
8	Lightning Conductors	Model making or diagram drawing	Copper wire, rod model	1. why do we use lightig coductor in big buildings 2. What happens if lighting conductors are installed in building
9	Earthquake – Causes and Effects	Chart explanation, video presentation	Charts, videos	1. What causes an earth quakes 2. Mention the effects of earthquake and collect the information about damages caused by the earthquake
10	Seismic Zones and Richter Scale	Explanation with map of India	Seismic zone map	1. How do we measure the intensity of the earthquake 2. Write the rector scale reading and affects of earthquake

11	Safety During Earthquakes	Mock drill, safety rules explanation	Safety checklist, posters	1. how can you protect big buildings from earthquakes 2. How do you protect from the earthquake yourself when you are outside the home
12	Revision Improve your learning	Mind mapping		MCQ,

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5 Reflection of the Teacher :

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8th CLASS LESSON PLAN

1. UNIT / LESSON : 11. Stars and Solar System
2. Total Periods required : 13
3. **Academic standards** :

➤ **Conceptual Understanding:**

➤ Explains the basic structure and components of the **solar system**, including the Sun, planets, moons, asteroids, comets, and meteoroids. They also learn about **stars, constellations, phases of the Moon**, and the **rotation and revolution** of celestial bodies.

➤ Differentiate why we see different constellations at different times, and how celestial bodies move in space.

➤ Give reasons for occurring seasons, day and night formation, eclipse formation

➤ **Asks Questions and Hypothesizes:**

➤ Asks questions like “Why does the Moon change its shape?”, “Why do stars twinkle?”, “Can humans live on other planets?”, or “What causes eclipses?”

➤ Hypothesize answers such as “The phases of the Moon depend on the position of the Sun, Earth, and Moon” and seek explanations through observation or guided instruction.

➤ **Experimentation and Field Investigation:**

➤ Participates in observational activities like **watching the night sky**, identifying planets and constellations, or simulating Moon phases using a torch and ball. They may conduct small models of eclipses and solar system movement to understand celestial mechanics practically.

➤ **Information Skills and Communication:**

- Collects information from textbooks, atlases, and digital media about planets, satellites, constellations, and space missions. They communicate this knowledge through charts, sky maps, group discussions, or presentations using appropriate astronomical terms like orbit, revolution, axis, and light-year.
- **Communication through Drawing :**
- Draws diagrams of the solar system, phases of the Moon, eclipses, and star constellations. They also interpret models, charts, and maps of the night sky, and use visual data to explain planetary positions and movements.
- **Appreciation and Environmental Awareness:**
- Appreciates the vastness and beauty of the universe and human efforts in space exploration.
- Understand the importance of preserving dark skies, protecting Earth from space debris, and using space knowledge for peaceful and constructive purposes.
- Develop curiosity and respect for scientific advancements in astronomy.
- **Application in Daily Life:**
The student applies their understanding to explain **day and night, seasons, lunar calendar, tides, and eclipses**. They connect the lesson to cultural knowledge such as festival dates, navigation using stars, and the relevance of satellites in communication and weather forecasting.

Period wise allotment

Period No	Content	Teaching Strategies / Learning Experiences	Resources / TLM	Assessment / Evaluation
1	Introduction to Stars and the Solar System	Brainstorming, Discussion	Textbook, Charts	1. what are the celestial objects that we can see in the sky 2. Why does the shadow of a tree change from morning to evening
2	Make your own sun dial Phases of the Moon	Demonstration using ball and light source	Right angled triangle sheet of cardboard. wooden board , glue strips of	1. Does the moon appear at same point at a particular time everyday 2. Is the shape of the moon is same everyday.

			paper Globe, Torch, Ball,video, digital medium	
3	Why Moon changes shape	Group discussion, Concept explanation	Models and diagrams	1. Why does the shape of the moon change 2. When does the full moon day occurs 3. Is there any life exist in the moon. Why?
4	Solar eclipse	Video lesson, Explanation	Projector, Videos	1. What are eclipse 2. How does the solar eclipse occurs 3. Mention the types of solar eclipse
5	Lunar eclipse	Video lesson, Explanation	Projector, Videos	1. How does the lunar eclipse occurs 2. Mention the types of lunar eclipse 3. Why does lunar eclipse occur only on full moon day.
6	Stars - Famous Constellations – Ursa Major, Orion	Digital medium, demonstration	Pictures, Charts, vidios , digital paltform	
7	The Pole Star and Navigation	Experiment and Historical context	Compass, Map	1. Draw the directions of the pole star 2. Write the navigation of the pole star.
8	The Solar System – Overview	Lecture with multimedia	Digital content, Models	1. Write about solar system 2. What is period of revolution 3. Explain period of rotation

				4. What is a satellite
9	Planets – Inner and Outer	Chart presentation and Discussion	Charts, Models	1. Which planet is called a morning or an evening star 2. Mention the smallest planet in solar system 3. Mention about inner and out planets
10	Special features of each planet Motions of Planets – Rotation & Revolution	Comparison table Activity Group work, Simulation	Textbook, Worksheets Globe, Ball models videos	1. How many planets do not have satellites 2. Mention the period of revolution of Neptune planet 3. Mention the biggest planet in solar system
11	Some other members of the solar system-asteroids-comets-meteors and meteorites	Explanation with digital medium	Videos, charts,	1. Mention the difference between asteroids and comets 2. Explain about meteorites and meteorites
12	Artificial Satellites – Uses	Video, Real-life applications	ISRO website content	1. Name some indian setellites 2. Explain the uses of artificial satellites
13	Revision	Mind map, Revision	Chart, digital videos	Discussion on improve your learning question

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8th CLASS LESSON PLAN

1. UNIT / LESSON : 12. Graphs of Motion

2. Total Periods required : 4

3. **Academic standards**

➤ **Conceptual Understanding:**

➤ Explains how motion can be represented graphically using **distance-time graphs** and **velocity-time graphs**.

➤ Differentiate the **uniform and non-uniform motion**, **slope of the graph**, and how to interpret straight lines, curves, and the area under a graph.

➤ Comprehend the relationship between motion and its graphical representation in real-life contexts.

➤ **Asks Questions and Hypothesizes:**

➤ The student asks questions such as “What does a straight line in a distance-time graph mean?”, “Can a graph help us compare speeds of two objects?”, or “What kind of motion creates a curved graph?”

➤ Predictions like “If an object is at rest, the distance-time graph will be a horizontal line” and explore these through examples.

➤ **Experimentation and Field Investigation:**

➤ Participates in hands-on activities such as measuring distance and time for a moving object and plotting graphs.

- Conduct experiments using toy cars, stopwatches, and measuring tapes to collect data and draw corresponding motion graphs, verifying types of motion.
- **Information Skills :**
- Collects and records motion data accurately, learns to plot it on graph paper, and interprets the meaning of the graph.
- Communicate their observations using terms like slope, velocity, acceleration, constant speed, and rest. They also explain what the shape and slope of a graph signify about motion.
- **Communication through Drawing :**
- Draws accurate distance-time and velocity-time graphs based on data and scenarios.
- They read and interpret given graphs to explain the type of motion shown, identify rest, acceleration, deceleration, and constant speed from graphical features like slope and curve.
- **Appreciation and Environmental Awareness:**
- Appreciates how graphical representation of motion simplifies understanding of movement and helps in better planning in transportation and engineering.
- Develop an awareness of energy conservation through motion analysis and the importance of studying motion scientifically for safe and efficient travel
- **Application in Daily Life:**
- Relates motion graphs to real-life examples such as speed-time data of vehicles, movement of people or animals, or sports activities.
- Understand how traffic data, navigation systems, and motion sensors use similar principles in modern applications.

C **Period wise allotment**

Period No	Content	Teaching Strategies / Learning Experiences	Resources / TLM	Assessment / Evaluation
1	Introduction to Motion and Graphs Distance-Time Graphs – Basics	Discussion, Concept Mapping Demonstration, Plotting activity	Textbook, Charts, Graph paper, Markers	1. how do you plot distance-time graphs 2. In which axis does time and distance will be taken

2	Plotting Distance-Time Graphs Graph is not a map Interpretation of Distance-Time Graphs- non uniform motion	Guided practice, Group work, Explanation	Student notebook, Ruler Sample graphs	1. Does graph and map both are same . why 2. What is uniform motion
3	Speed from Distance-Time Graphs Relation between speed and the slope of a graph	Problem solving, Practice	Formulas chart	1. plot a graph which shows the relation between speed and slope
4	Graph showing the motion of a turtle falling from the beaks of swan. A brain teaser The graph of a story.	Illustration and Explanation Analytical discussion	Diagrams, Board Work Prepared charts	1. Plot the graph of brain teaser in the activity 2. Illustrate the race between the rabbit and the tortoise in the form of a graph

4. Teacher Notes :

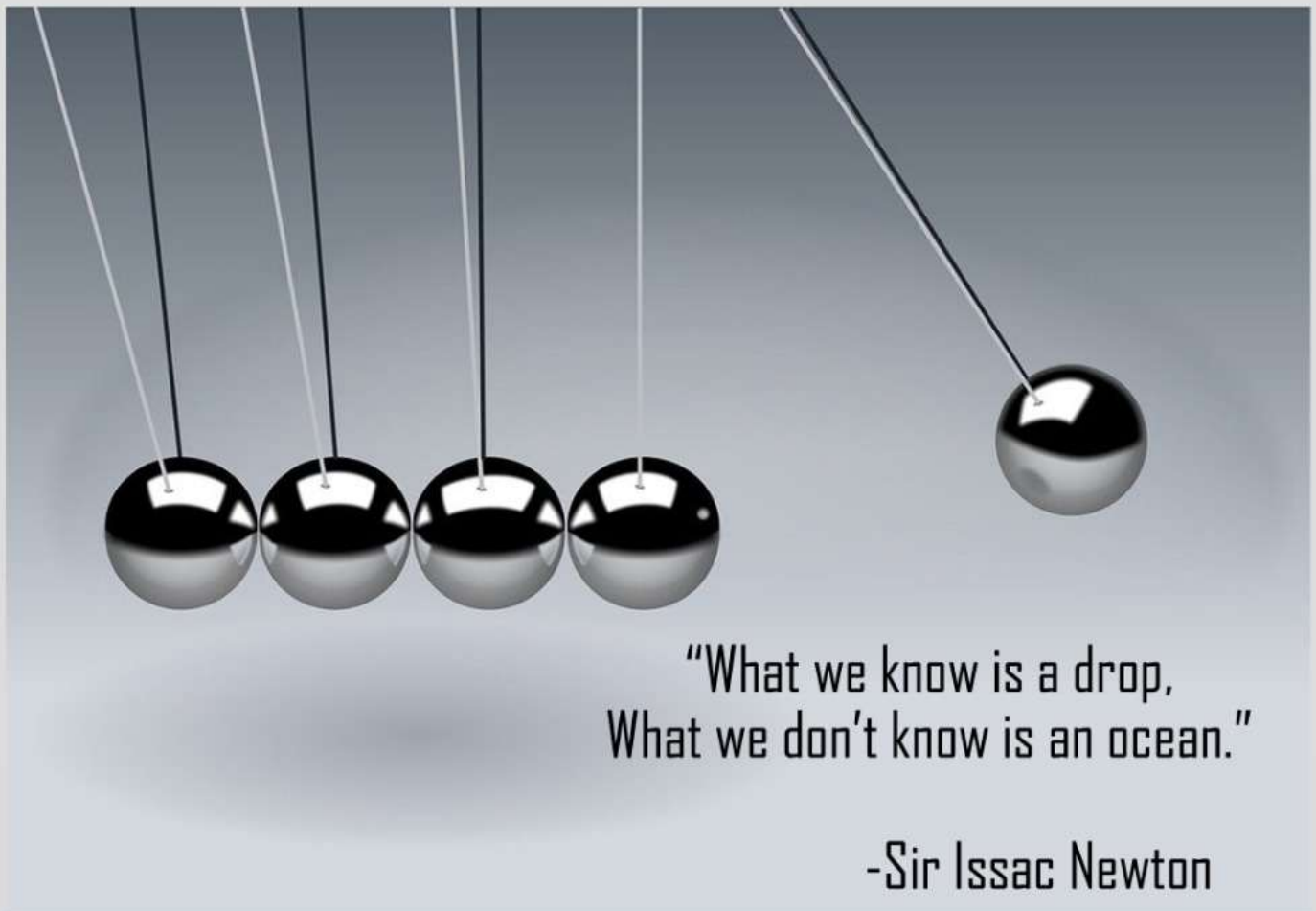
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“What we know is a drop,
What we don't know is an ocean.”

-Sir Issac Newton

Steps in Teaching the Lesson :

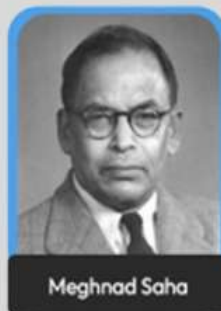
1. Introduction /perquisites (Mind mapping)
2. Reading the Lesson: keywords/key concepts/symbols/ formulae etc,
3. Conceptual understanding through pedagogical strategies.
4. Recapitulation/summary
5. Homework



Sir C.V. Raman



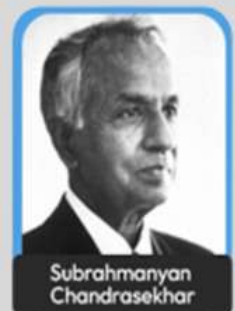
Satyendranath Bose



Meghnad Saha



Homi J. Bhabha



Subrahmanyan
Chandrasekhar



Vikram Sarabhai



G.N Ramachandran



Jayant Narlikar



Harish Chandra



Sandip Chakrabarti