

## **CLASS VIII SCIENCE LESSON PLAN (2026-27)**

BUDHA DAL PUBLIC SCHOOL, PATIALA

SCIENCE SYLLABUS -- CLASS VIII (2026 - 27)

### **FIRST TERM**

#### **APRIL:**

Ch - 1 - Exploring the Investigative World of Science.

Ch - 2 - The Invisible World: Beyond our Naked Eye.

#### **MAY:**

Ch - 3 – Health: The Ultimate Treasure.

Ch - 4 - Electricity: Magnetic and Heating Effects.

#### **JULY:**

Ch - 5 - Exploring Forces.

Ch - 6 - Pressure, Winds, Storms and Cyclones.

#### **AUGUST:**

Ch - 7 - Particulate Nature of Matter.

#### **+ REVISION**

#### **FIRST PERIODIC TEST**

Ch - 2 - The Invisible World: Beyond our Naked Eye.

### **SECOND TERM**

#### **OCTOBER:**

Ch - 8 - Nature of Matter: Elements, Compounds and Mixtures.

Ch - 9 - The Amazing World of Solutes, Solvents and Solutions.

**NOVEMBER:**

Ch - 10 - Light: Mirrors and Lenses.

Ch - 11 - Keeping Time with the Skies.

**DECEMBER:**

Ch - 11 - Keeping Time with the Skies. (Cont.)

Ch - 12 - How Nature works in Harmony.

**JANUARY:**

Ch - 13 - Our Home: Earth a Unique Life Sustaining Planet.

**+ REVISION**

**Note: Ch - 3 - Health: The Ultimate Treasure (First Term) to be included.**

**SECOND PERIODIC TEST**

Ch - 8 - Nature of Matter: Elements, Compounds and Mixtures.

Ch – 10 – Light : Mirrors and Lenses

## **Lesson Plan**

**Month: April**

**Class: Grade 8**

**Subject: Science**

**Chapter: 1 – Exploring the Investigative World of Science**

**Duration: 5 days**

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### **1. Learning Objectives**

- To spark curiosity by asking scientific “Why?” and “How?” questions.
  - To understand the concept of investigation in science through everyday examples (e.g., why a puri puffs up).
  - To introduce students to systematic observation, controlled experiments, and recording results.
  - To develop critical thinking, creativity, and scientific inquiry skills.
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### **2. Previous Knowledge Testing**

- Ask quick questions:
    - What happens when we boil water?
    - Why do balloons expand when filled with air?
    - Have you seen a roti or puri puff up? Why do you think it happens?
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### **3. Important Spellings & Vocabulary**

- **Investigation**
- **Observation**
- **Experiment**
- **Hypothesis**
- **Variables** (controlled, independent, dependent)

- **Phenomenon**
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#### 4. Innovative Explanation Methods

- **Storytelling:** Begin with the question “Why is one side of a puri thinner than the other?” to link science with culture.
  - **Kitchen Science Analogy:** Explain how simple cooking can be an experiment.
  - **Interactive Demonstration:** Show a video clip / live demo of a puri puffing up.
  - **Root and Kite Analogy (from textbook):** Root = observation, Kite = imagination.
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#### 5. Teaching Procedure

1. **Introduction (5 min):** Curiosity questions + discussion.
  2. **Concept Building (10 min):** Explain how scientists investigate by controlling variables.
  3. **Activity / Demonstration (10 min):**
    - Small groups: Predict what happens if dough is thick/thin.
    - Teacher shows video/demo of puri puffing.
    - Students observe & note differences.
  4. **Discussion (5 min):** Students share observations, compare with predictions.
  5. **Link to Scientific Method (5 min):** Hypothesis → Experiment → Observation → Conclusion.
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#### 6. Participation of Students

- Group discussions.
  - Prediction-based Q&A.
  - Hands-on note-taking of observations.
  - Sharing findings aloud.
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## 7. Experiential Learning

- **Real-life kitchen experiment:** Students can try at home with puri/chapati and note observations.
  - Connecting food, physics (air expansion), and chemistry (moisture evaporation).
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## 8. Art Integration

- Students draw a step-by-step **pictorial representation** of a puri puffing (before, during, after frying).
  - Poster-making: “Science in My Kitchen.”
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## 9. Recapitulation (Quick Review)

- Teacher asks:
    - What does investigation in science mean?
    - Why must we change only one factor at a time in an experiment?
    - What is an example of everyday science you can test?
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## 10. Assignment

- Write 3 everyday questions you would like to investigate (e.g., Why does ice float? Why do glasses fog up?).
  - Observe at home how food changes when cooked—note one scientific observation.
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## 11. Learning Outcomes

By the end of the lesson, students will:

- Ask scientific questions with curiosity.
- Differentiate between observation and inference.
- Understand that experiments need controlled conditions.
- Relate science with daily life.

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## 12. Real-life Application

- Using science to understand cooking, weather, health, and natural phenomena.
- Learning how investigation helps in innovation and solving real-world problems.

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## 13. Resources Required

- NCERT Curiosity
  - NCERT Exemplar

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## 14. Co-Scholastic Areas

- **Life Skills:** Critical thinking, problem-solving.
- **Values:** Curiosity, patience, observation.
- **Art & Creativity:** Drawing and poster-making.
- **Communication Skills:** Group discussion & sharing.

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## 15. Remedial Teaching

- Use simpler examples (balloon inflating, boiling water).
- Provide vocabulary cards for difficult spellings.
- Extra practice worksheets for slower learners.

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## 16. Inclusive Practices

- Group work with mixed abilities.
  - Encourage every student to share at least one observation.
  - Provide visual aids, gestures, and bilingual explanations if needed.
  - Equal participation without discrimination (gender, background, ability).
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## **Lesson Plan**

**Month:** April

**Subject:** Science

**Class:** 8

**Chapter:** The Invisible Living World: Beyond Our Naked Eye

**Duration:** 15 days

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### **1. Learning Objectives**

By the end of the lesson, students will be able to:

- Understand that cells are the basic unit of life.
  - Differentiate between plant and animal cells.
  - Explain the role of microorganisms in daily life (beneficial and harmful).
  - Develop curiosity and scientific inquiry through observation.
  - Apply knowledge of microbes to real-life situations (food, health, environment).
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### **2. Previous Knowledge Testing**

- Ask:
    1. Have you seen mould growing on bread or fruit?
    2. Why do doctors give antibiotics?
    3. What happens when curd is left outside?
  - Students share observations → teacher links to microbes.
- 

### **3. Important Spellings**

- **Microscope**
- **Microorganism**
- **Bacteria**
- **Fungi**

- **Protozoa**
  - **Cytoplasm**
  - **Nucleus**
  - **Chloroplast**
  - **Fermentation**
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#### 4. Innovative Teaching Methods

- **Experiential Learning:** Onion peel & cheek cell slide (microscope/foldscope demo).
  - **Art Integration:** Students draw a **comic strip** of Robert Hooke discovering the cell.
  - **Storytelling:** Narrate how Leeuwenhoek saw bacteria for the first time.
  - **Role Play:** Some students act as plant cells, animal cells, and bacteria to show differences.
  - **Digital Integration:** Short video/animation of microorganisms.
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#### 5. Procedure

1. **Introduction (5 min):** Teacher shows a flask of water on text and magnification experiment (Activity 2.1).
2. **Demonstration (15 min):** Onion peel & cheek cell observation (Activities 2.2 & 2.3).
3. **Explanation (10 min):** With diagrams, explain cell parts (nucleus, cytoplasm, cell wall, etc.).
4. **Group Activity (10 min):** Students work in groups to classify microbes into **useful** vs **harmful**.
5. **Art Integration (10 min):** Students draw microorganisms (algae, bacteria, fungi, protozoa).
6. **Discussion (10 min):** Why microbes are important in food (curd, bread) and environment (compost, biogas).
7. **Participation (10 min):** Students share their household examples of microbes.

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## 6. Student Participation

- Group work, role play, drawing, peer-to-peer explanation.
  - Question prompts like:
    - “What if microorganisms did not exist?”
    - “How do you think your food habits are connected to microbes?”
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## 7. Experiential Learning

- Onion peel and cheek cell under microscope.
  - Bread kept in warm vs. cold place to observe mould growth.
  - Compost making activity (fruit peels in soil).
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## 8. Art Integration

- Comic strip / Poster on “A day in the life of a microbe.”
  - Cell diagram drawing competition.
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## 9. Recapitulation (Quick Recall Game)

- Rapid-fire quiz:
    1. Who discovered the cell?
    2. Which microbe makes curd?
    3. Which is the largest known cell?
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## 10. Assignment

1. Draw and label a plant and an animal cell.
2. Write 5 ways microorganisms help us in daily life.
3. Keep 2 slices of bread in different conditions and record changes for 3 days.

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## 11. Learning Outcomes

Students will:

- Define and identify cells & microorganisms.
- Differentiate between unicellular and multicellular organisms.
- Apply knowledge of microbes to food, health, and environment.
- Develop scientific curiosity and observation skills.

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## 12. Application in Real Life

- Making curd, bread, idli, dosa (fermentation).
- Waste management through composting.
- Biogas for fuel.
- Role of bacteria in digestion.
- Diseases caused by harmful microbes.

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## 13. Resources

- NCERT Curiosity
- NCERT Exemplar

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## 14. Co-Scholastic Areas

- **Art:** Drawing microorganisms.
- **Drama:** Role-play as microbes.
- **Environmental Education:** Composting and waste management.
- **Life Skills:** Teamwork in group activities.

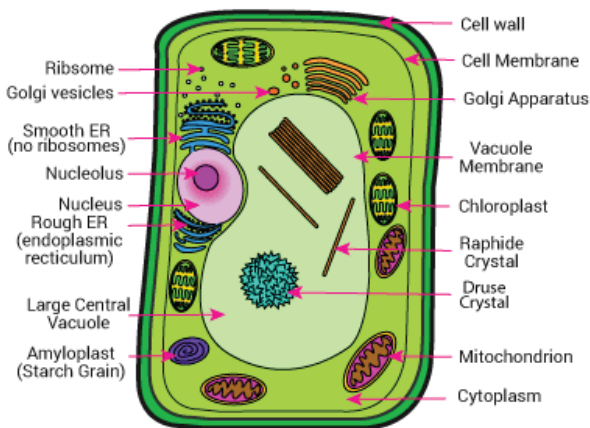
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## 15. Remedial Teaching

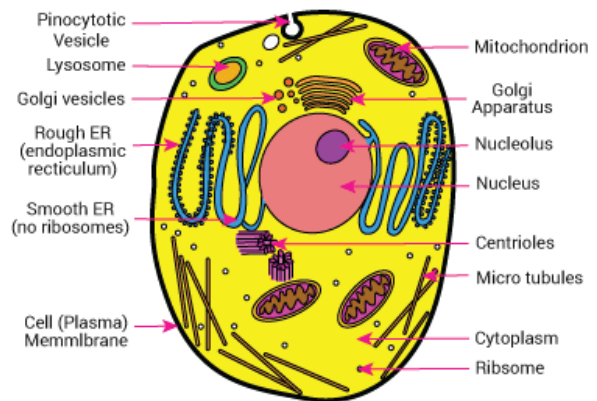
- Simplify diagrams for weaker students.
- Use **videos/animations** for visual learners.
- Extra practice worksheets with labelled diagrams.

## 16. Inclusive Practices

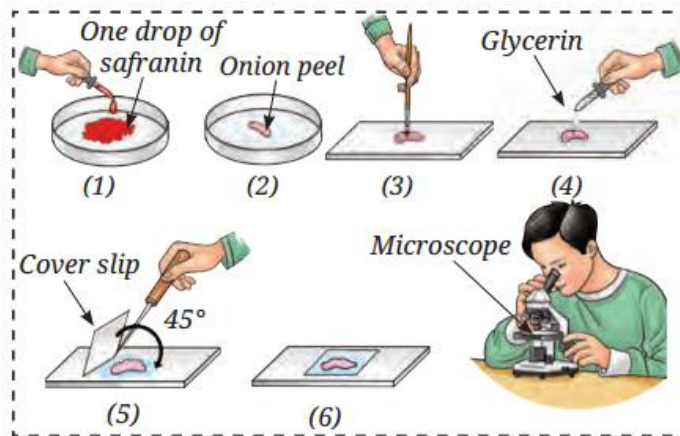
- Grouping mixed-ability students together.
- Giving roles in activities to every child (artist, speaker, note-taker).
- Ensuring gender-neutral participation.
- Encouraging questions without fear of judgment.



PLANT CELL



ANIMAL CELL



## Lesson Plan

**Month:** May

**Class:** VIII

**Subject:** Science

**Chapter:** Health: The Ultimate Treasure

**Duration:** 15 days

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### 1. Learning Objectives

By the end of the lesson, students will be able to:

- Define *health* as complete physical, mental, and social well-being (WHO definition).
  - Differentiate between **communicable** and **non-communicable** diseases.
  - Explain causes, prevention, and control of common diseases.
  - Recognize the role of lifestyle, environment, and immunity in staying healthy.
  - Appreciate yoga, hygiene, and balanced diet as health-promoting practices.
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### 2. Previous Knowledge Testing

- Ask: *“Why do we rarely hear about smallpox today, but often hear about diabetes?”*
  - Quiz: *“Name any one disease that spreads through mosquitoes.”*
  - Discussion: *“What habits do you think keep you healthy?”*
- 

### 3. Important Spellings & Vocabulary

- Communicable
- Non-communicable
- Pathogen
- Immunity
- Vaccination
- Lifestyle diseases

- Hygiene
  - Antibiotics
- 

#### 4. Explanation with Innovative Methods

- **Storytelling:** Narrate the case study of the lonely boy who overused social media and became sick.
  - **Role Play:** Students act as doctor–patient to discuss symptoms and treatment.
  - **Concept Mapping:** Create a board diagram showing *Health → Lifestyle → Diseases → Prevention*.
  - **Interactive Chart:** Compare playground images (clean vs. dirty) and discuss.
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#### 5. Teaching Procedure

1. **Introduction (5 min):** Display news clippings on diabetes, obesity, air pollution (from textbook).
  2. **Discussion (10 min):** WHO definition of health; ask students to reflect if being healthy is only about “not falling sick.”
  3. **Activity (15 min):** “Good vs. Bad Habits” listing on chart paper.
  4. **Explanation (15 min):** Types of diseases, symptoms, prevention (with examples from Table 3.1 & 3.2).
  5. **Demonstration (10 min):** Simple pranayama (breathing exercise).
  6. **Group Work (15 min):** Students prepare posters on prevention of dengue, TB, or diabetes.
  7. **Conclusion (10 min):** Summarize key takeaways; link to real life.
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#### 6. Participation of Students

- Group discussions.
- Peer teaching (each group explains one disease to others).
- Poster-making competition.

- Reflection writing: *“One lifestyle change I will adopt.”*
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## 7. Experiential Learning

- Maintain a **Health Diary** for one week: diet, exercise, screen time, sleep.
  - Visit school garden/playground to observe cleanliness and suggest improvements.
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## 8. Art Integration

- Poster-making on “Prevention of Communicable Diseases.”
  - Skit on “Effects of Fast Food vs. Healthy Food.”
  - Slogan writing on health and hygiene.
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## 9. Recapitulation

- Rapid Fire Questions:
    1. What is the difference between symptoms and signs?
    2. Give two examples of communicable diseases.
    3. Why is vaccination important?
    4. Name one lifestyle-related disease.
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## 10. Assignment

- Draw a table of **5 common diseases** (cause, symptoms, prevention).
  - Interview a family member about their health habits.
  - Prepare a short write-up: *“Prevention is better than cure.”*
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## 11. Learning Outcomes

Students will:

- Understand health beyond absence of disease.

- Identify healthy and unhealthy habits.
  - Explain disease prevention methods.
  - Show positive attitude towards hygiene, exercise, and balanced diet.
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## **12. Application in Real Life**

- Adopt healthy eating and sleep habits.
  - Reduce screen time.
  - Use mosquito nets, safe water, and handwashing daily.
  - Say *NO* to harmful substances like tobacco and alcohol.
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## **13. Resources**

- NCERT Textbook (*Curiosity – Science for Grade 8*)
  - NCERT Exemplar
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## **14. Co-Scholastic Areas**

- Value education: Empathy and helping sick classmates.
  - Life skills: Decision-making, stress management.
  - Yoga & Meditation: Enhancing concentration and calmness.
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## **15. Remedial Teaching**

- Provide simplified notes with diagrams for weaker students.
  - Use flashcards (pictures of diseases & preventive measures).
  - Extra peer support sessions.
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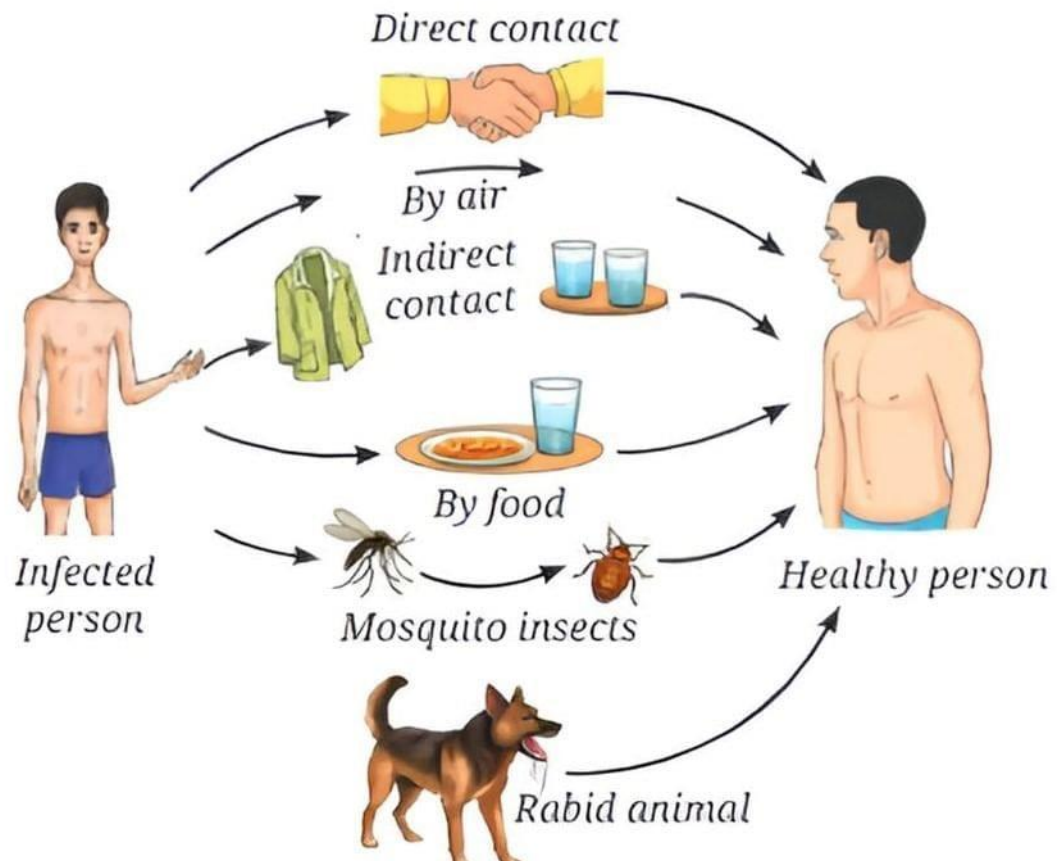
## **16. Inclusive Practices**

- Mixed group activities ensuring participation of every student.

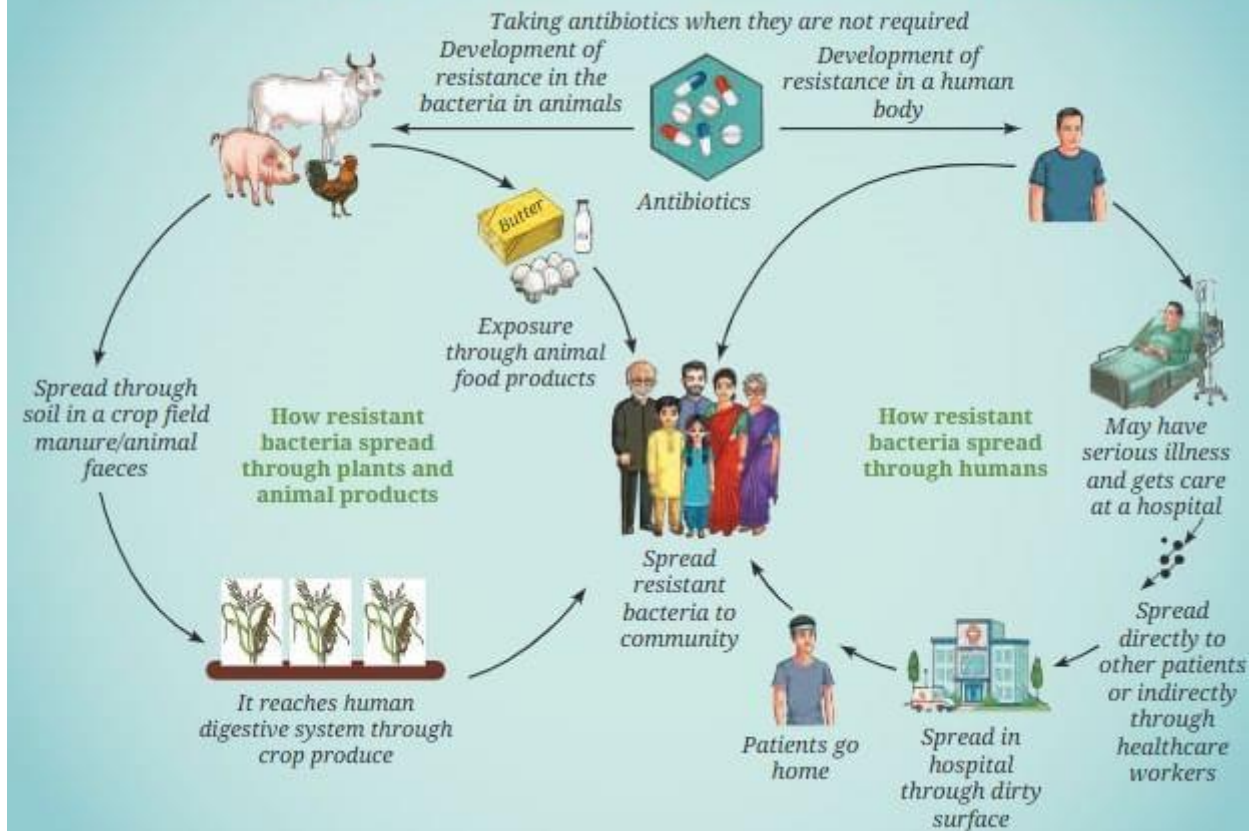
- Assign roles (drawing, speaking, writing) as per strengths.
- Encourage expression in both English & mother tongue for clarity.

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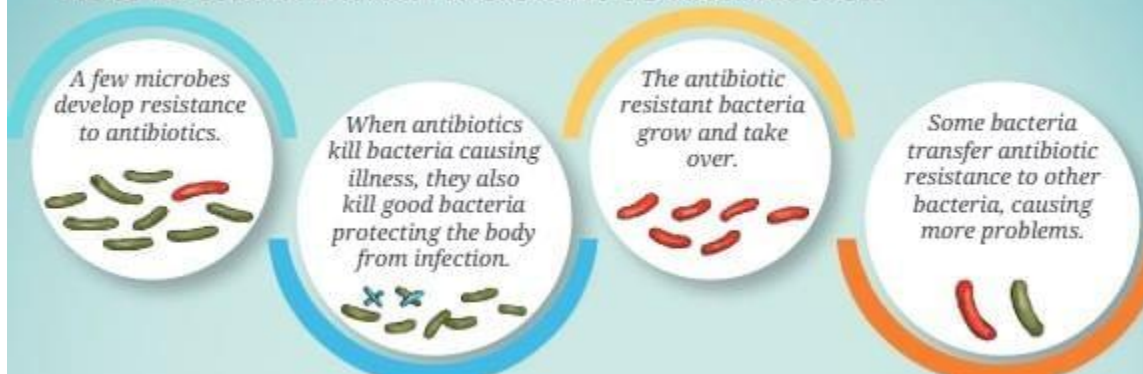
## Common Methods of Transmission of Diseases



## HOW ANTIBIOTIC RESISTANCE SPREADS IN THE COMMUNITY?



## HOW BACTERIA BECAME RESISTANT TO ANITBIOTICS?



## Lesson Plan

**Month:** May

**Subject:** Science

**Class:** 8

**Topic:** *Electricity – Magnetic and Heating Effects*

**Duration:** 15 days

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### 1. Learning Objectives

By the end of the lesson, students will be able to:

- Explain the **magnetic effect of electric current**.
  - Construct and observe an **electromagnet**.
  - Demonstrate the **heating effect of electric current** using nichrome wire.
  - Identify the **real-life applications** of electromagnets and heating effects.
  - Develop curiosity by relating **science to daily life** (motors, fans, irons, bells).
- 

### 2. Previous Knowledge Testing

Ask quick oral questions:

- What are magnets? What materials do they attract?
  - What happens when you connect a bulb with a cell in a circuit?
  - Have you seen a compass? What does its needle show?
  - Have you touched a glowing bulb or torch after some time? How did it feel?
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### 3. Important Spellings

Students write and pronounce:

- Electromagnet
- Conductor
- Resistance

- Circuit
  - Battery
  - Compass
  - Heating element
  - Current
- 

#### 4. Explanation with Innovative Methods

- **Story Method:** Narrate the story of **Hans Christian Oersted** discovering the compass needle deflection when current passed.
  - **Demonstration:** Teacher shows simple electromagnet with nail + wire + cell (Activity 4.2).
  - **Role-play:** Students act as “current,” “wire,” “magnet,” “needle” to simulate how they interact.
  - **Think-Pair-Share:** “Why does the bulb filament glow when current passes?”
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#### 5. Procedure

1. Begin with a real object – a torch/battery-operated toy.
  2. Demonstrate compass needle deflection when current flows.
  3. Guide students to make a small electromagnet (in groups).
  4. Demonstrate nichrome wire heating.
  5. Discuss safety and real-life use.
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#### 6. Participation of Students

- Hands-on activity in pairs (making electromagnet).
  - Answering prediction questions: *What happens if we add more turns of wire?*
  - Peer discussion on safety in household wiring.
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## 7. Experiential Learning

- Students **experience live demonstration** of needle deflection and heating effect.
  - They connect experiments to their own experiences: electric iron, room heater, phone battery.
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## 8. Art Integration

- Drawing activity: Students sketch an electromagnet or dry cell with labels.
  - Creative poster: *“Electricity in Our Daily Life”*.
  - Use of clay/3D model to show coils and circuits.
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## 9. Recapitulation

Teacher asks:

- What happens to the compass needle when current flows?
  - What is an electromagnet?
  - Give two uses of heating effect.
  - Why does nichrome wire heat up more than copper wire?
- 

## 10. Assignment

- Write short answers:
    1. Explain one real-life use of electromagnets.
    2. Why is nichrome used in heaters?
    3. Draw a neat diagram of an electromagnet.
  - Home task: Survey at home – list **3 appliances that work on magnetic effect** and **3 on heating effect**.
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## 11. Learning Outcomes

Students will be able to:

- Demonstrate **practical knowledge of circuits**.
  - Relate electricity with magnetism and heating.
  - Apply concepts to explain **daily appliances**.
  - Show improved **scientific vocabulary** and **observation skills**.
- 

## 12. Application in Real Life

- Electromagnets → cranes in junkyards, electric bells, motors.
  - Heating effect → irons, geysers, ovens, stoves.
  - Safety → fuse, circuit breakers.
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## 13. Resources Required

- NCERT Curiosity
  - NCERT Exemplar
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## 14. Co-scholastic Areas

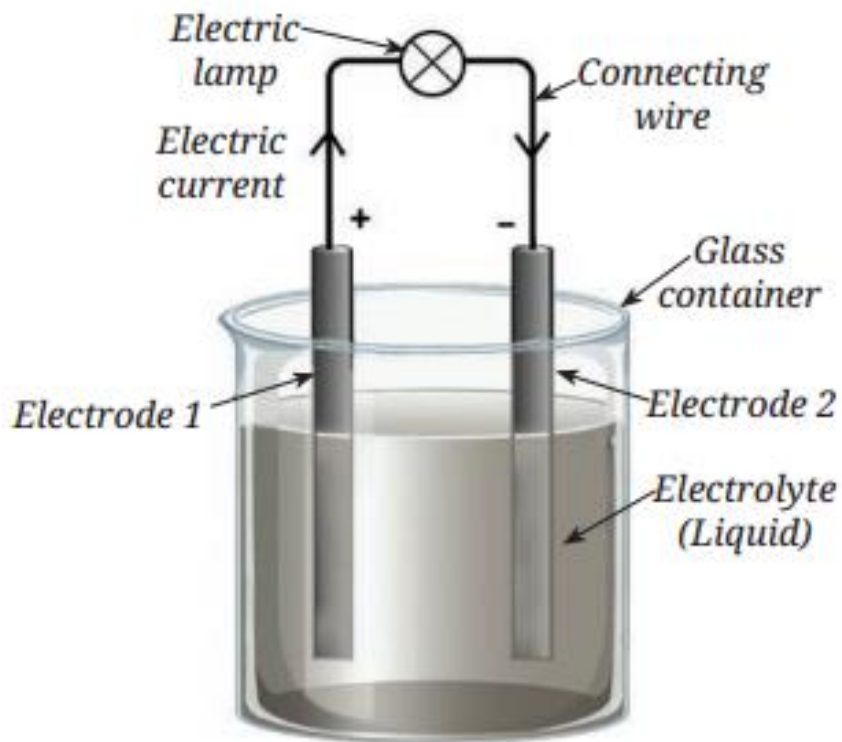
- **Value education:** Importance of safety with electricity.
  - **Environmental awareness:** Recycling batteries, reducing e-waste.
  - **Life skills:** Teamwork in activity, problem solving.
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## 15. Remedial Teaching

- Simplify concepts with **visual aids** for weaker students.
  - Re-demonstrate activities slowly.
  - Use bilingual explanation if required.
  - Give simpler home tasks (e.g., “find two appliances with coil”).
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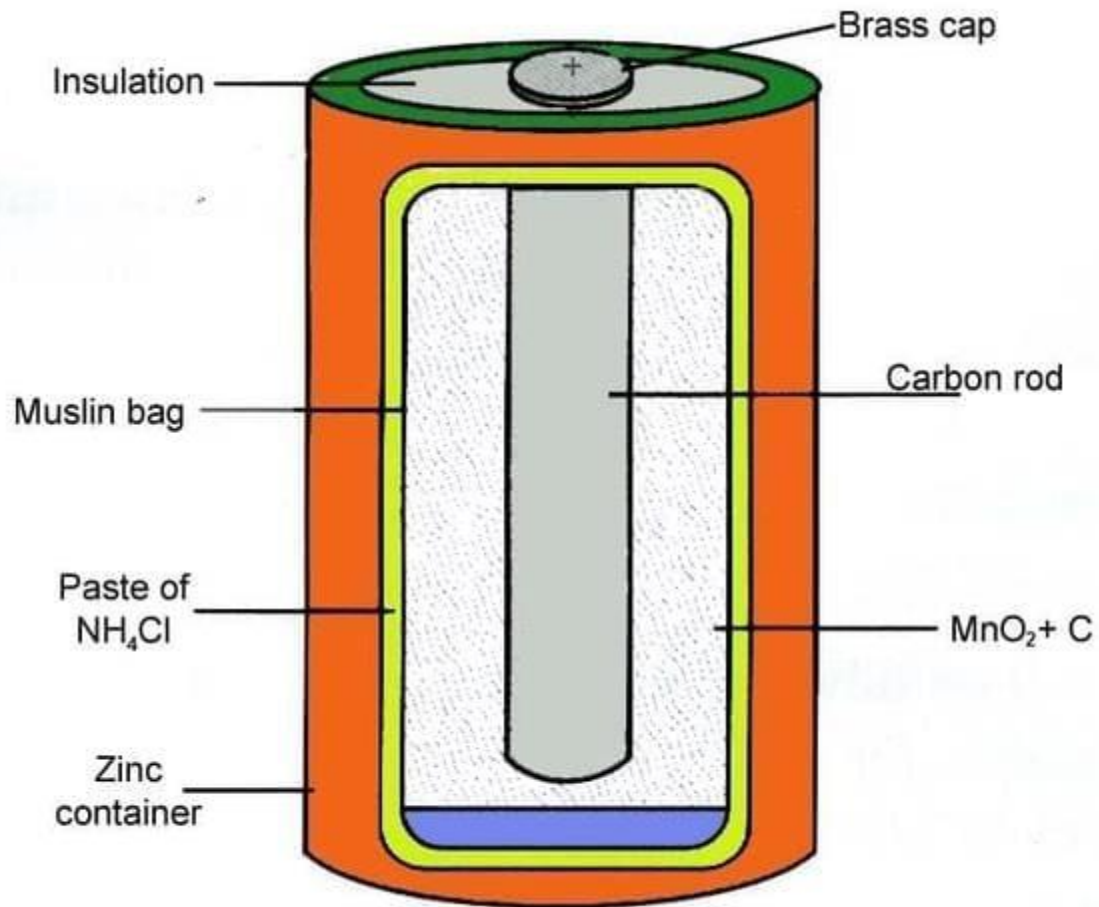
## 16. Inclusive Practices

- Group work ensures peer support.
  - Roles (drawing, writing, handling apparatus) allow participation of all, including children with different learning abilities.
  - Encourage responses from shy learners through group activities.
  - Zero discrimination – equal access to materials.
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*Simple representation of  
a Voltaic cell*

Voltaic Cell



Dry Cell and its internal structure

## Lesson Plan

**Month:** July

**Class:** 8

**Subject:** Science

**Chapter:** Exploring Forces

**Duration:** 15 days

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### 1. Lesson Objectives

By the end of the lesson, students will be able to:

- Define force as a push or pull.
  - Identify and differentiate between **contact forces** (muscular, friction) and **non-contact forces** (magnetic, electrostatic, gravitational).
  - Explain the effects of force: change in speed, direction, and shape.
  - Apply knowledge of forces to real-life situations (cycling uphill, floating/sinking, slipping, etc.).
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### 2. Previous Knowledge Testing (Warm-up)

- Ask:
    - “Why does a football stop rolling after some time?”
    - “What happens when you try to push a heavy table?”
  - Quick activity: Push/pull a box or desk → Students describe what they feel.
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### 3. Important Spellings & Keywords

- Force
- Friction
- Gravity
- Buoyancy

- Electrostatic
  - Magnetism
  - Interaction
  - Newton (N)
- 

#### 4. Explanation with Innovative Methods

- **Story Method:** Narrate Sonali and Ragini's bicycle ride from the textbook to connect force concepts with real-life.
  - **Demonstration:** Push/pull a box, rub a balloon on wool to show electrostatic force, drop a ball to show gravity.
  - **Digital/Visual Aid:** Show short animations of friction, gravity, floating & sinking.
  - **Peer Teaching:** Students explain examples of forces they notice daily.
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#### 5. Teaching Procedure

1. **Introduction (5 min):** Curiosity questions (Why do we slip? Why do objects fall down?).
  2. **Exploration (15 min):** Teacher explains contact & non-contact forces with activities.
  3. **Concept Mapping (10 min):** Students create a mind-map of different forces in their notebooks.
  4. **Discussion (5 min):** Class debate on "*Friction – Friend or Foe?*"
  5. **Summary (5 min):** Teacher recaps with a quick Q&A.
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#### 6. Student Participation

- Group activity: Classify actions (kicking ball, magnet attracting pins, balloon rubbing, apple falling, swimming) into *contact* and *non-contact* forces.
  - Roleplay: Some students act as objects (ball, Earth, magnet, person pushing box).
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## 7. Experiential Learning

- Push a chair → notice resistance (friction).
  - Drop chalk piece and feather → compare falling (gravity, air resistance).
  - Float/sink test with pencil, stone, plastic bottle (buoyancy).
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## 8. Art Integration

- Students draw comic strips of a “day without gravity.”
  - Create posters showing types of forces with diagrams.
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## 9. Recapitulation

- Quick quiz:
    1. Name one contact and one non-contact force.
    2. What force makes us slip on wet floors?
    3. Why do objects fall to Earth?
  - Memory game: Teacher says an example, students shout the type of force.
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## 10. Assignment / Homework

- Write 5 real-life examples of forces around your home and identify their type.
  - Design a simple experiment to demonstrate friction using objects available at home.
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## 11. Learning Outcomes

Students will be able to:

- Recognize and explain different forces with examples.
  - Apply the concept of force to daily experiences.
  - Develop curiosity and questioning skills in science.
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## 12. Application in Real Life

- Sports (kicking, catching, throwing).
  - Transport (brakes in vehicles, airplanes reducing air friction).
  - Household (using magnets on fridge, slipping on soap, opening doors).
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## 13. Resources Required

- NCERT Curiosity
  - NCERT Exemplar
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## 14. Co-Scholastic Areas

- **Teamwork:** Group activities.
  - **Creativity:** Poster and comic drawing.
  - **Critical Thinking:** Debate on friction.
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## 15. Remedial Teaching

- Provide simpler real-life examples (pushing door, slipping on floor).
  - Use bilingual explanation (local language + English).
  - Extra practice worksheets for slower learners.
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## 16. Inclusive Practices

- Group students heterogeneously so everyone contributes.
  - Allow drawings or gestures for students with language difficulties.
  - Ensure full participation without discrimination (gender, ability, background).
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## **Lesson Plan**

**Month: July**

**Subject: Science**

**Class: 8**

**Chapter: Pressure, Winds, Storms, and Cyclones**

**Duration: 15 days**

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### **1. Objectives**

- **Understand the concept of pressure (force per unit area).**
  - **Differentiate between pressure in solids, liquids, and gases.**
  - **Explain how winds are formed due to pressure differences.**
  - **Analyze the causes and effects of storms, thunderstorms, and cyclones.**
  - **Develop safety awareness and disaster preparedness.**
  - **Promote critical thinking through experiments and discussions.**
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### **2. Previous Knowledge Testing**

- **Ask: “*Why do people feel more comfortable with broad bag straps?*”**
  - **Quick quiz: “*Does air have weight? Can we feel pressure of air around us?*”**
  - **Recall Grade 7 concepts: sea breeze and land breeze.**
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### **3. Important Spellings**

- **Pressure, Atmosphere, Cyclone, Thunderstorm, Lightning, Pascal, Evaporation, Condensation, Hectopascal, Dam.**
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### **4. Explanation with Innovative Methods**

- **Demonstration: Show a bag with narrow vs. broad straps.**
- **Activity: Blow between two balloons to show *low pressure*.**

- **Multimedia:** Short video clips of storms/cyclones.
  - **Storytelling:** Narrate about Cyclone Amphan (2020) and its impact.
  - **Role Play:** Students act as news reporters giving cyclone safety tips.
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## **5. Procedure**

1. **Begin with curiosity-driven questions (Why tanks on rooftops? Why roofs fly off?).**
  2. **Conduct experiments (nail, knife, balloon, water bottle holes).**
  3. **Explain the scientific principle after each experiment.**
  4. **Group discussion on real-life cyclone experiences in India.**
  5. **Summarize with textbook “Snapshots” section.**
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## **6. Participation of Students**

- **Students perform experiments in groups.**
  - **Peer questioning (*“What did you observe?”*).**
  - **Share regional experiences of thunderstorms.**
- 

## **7. Experiential Learning**

- **Real-life experiments:**
    - **Rubber sucker on wall.**
    - **Bottle with holes showing liquid pressure.**
    - **Paper strip activity (blowing air creates lift).**
  - **Link science to everyday objects like water tanks, umbrellas, and balloons.**
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## **8. Art Integration**

- **Drawing/painting: “A cyclone scene before and after impact.”**

- Poster-making: “Do’s and Don’ts during thunderstorms.”
  - Poetry/song writing on “The Power of Winds.”
- 

## 9. Recapitulation

- Quick-fire Q&A:
    - Define pressure.
    - Why are dams thicker at the base?
    - Why do cyclones form near oceans?
    - What is the eye of a cyclone?
- 

## 10. Assignment

- Worksheet with diagrams and reasoning questions.
  - Collect data on 3 major cyclones in India (last 20 years).
  - Write a short note: “*Why holes are made in hoardings?*”
- 

## 11. Learning Outcomes

Students will be able to:

- Explain pressure and its effects in real life.
  - Demonstrate air and liquid pressure through activities.
  - Understand the link between pressure difference and wind formation.
  - Evaluate the impact of cyclones and precautionary measures.
- 

## 12. Application in Real Life

- Broad straps vs narrow straps (comfort).
- Placement of overhead water tanks.
- Use of lightning conductors.

- **Disaster management during cyclones.**
- 

### **13. Resources**

- **Science textbook Curiosity**
  - **NCERT Exemplar**
- 

### **14. Co-Scholastic Areas**

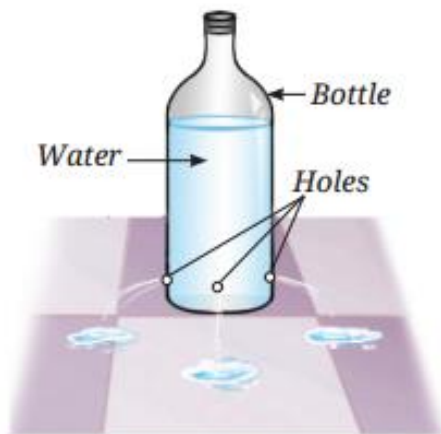
- **Collaboration: Group experiments.**
  - **Creativity: Posters, art, slogans.**
  - **Critical Thinking: Analyzing cyclone safety measures.**
- 

### **15. Remedial Teaching**

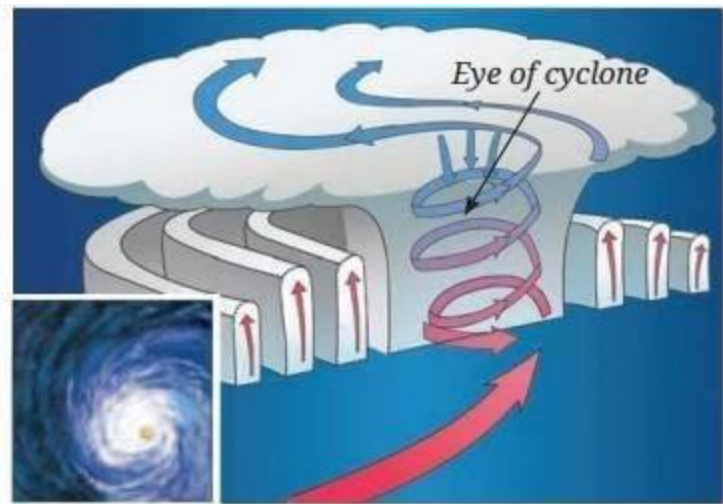
- **Use visual aids and simple experiments for struggling learners.**
  - **Provide extra practice sheets on formulas and definitions.**
  - **One-to-one discussion using real-life analogies.**
- 

### **16. Inclusive Practices**

- **Pair stronger students with weaker ones.**
  - **Use signs, visuals, gestures for students with language barriers.**
  - **Ensure equal participation, no discrimination on gender, background, or ability.**
-



*Liquid exerts pressure  
on the wall of the container*



A CYCLONE

## **Lesson Plan**

**Month: August**

**Subject: Science**

**Class: 8**

**Chapter: Particulate Nature of Matter**

**Duration: 15 days**

---

### **1. Learning Objectives**

By the end of the lesson, students will be able to:

1. Explain that matter is made up of extremely small particles.
  2. Differentiate between solids, liquids, and gases on the basis of interparticle spacing, attraction, and motion.
  3. Perform simple experiments (sugar dissolving, incense stick diffusion, syringe compression) to prove the particulate nature of matter.
  4. Connect scientific concepts to everyday life (perfume smell spreading, wet clothes drying, etc.).
  5. Develop scientific curiosity, teamwork, and observational skills.
- 

### **2. Previous Knowledge Testing**

- Why can we pile stones but not water?
  - Why does water take the shape of our hands?
  - If air is invisible, how does it fill a balloon?
- 

### **3. Vocabulary & Important Spellings**

- Matter
- Particles
- Interparticle Space
- Interparticle Attraction

- Diffusion
  - Melting Point
  - Boiling Point
  - Evaporation
- 

#### 4. Explanation with Innovative Methods

- **Activity-Based:** Chalk grinding, sugar dissolving, incense stick fragrance.
  - **Role-Play:** Students act as particles of solids (tight), liquids (flowy), gases (free).
  - **Art Integration:** Drawing particle arrangements in states of matter.
  - **Storytelling:** Share *Acharya Kanad's Parmanu* theory to integrate heritage.
  - **Tech-Supported:** Use animations/simulations (if available).
- 

#### 5. Teaching Procedure

1. **Introduction:** Teacher shows chalk, breaks & grinds it → asks: “Are these the smallest particles?”
  2. **Demonstration:** Do Activities 7.1–7.5 (chalk, sugar, syringe, water, incense).
  3. **Discussion:** Compare solids, liquids, gases.
  4. **Experiential Role-Play:** Students enact as particles.
  5. **Art Work:** Draw diagrams of particle arrangements.
  6. **Q&A:** Quick questioning to reinforce concepts.
- 

#### 6. Student Participation

- Group experiments.
  - Role-play as particles.
  - Peer explanation & diagram presentations.
-

## 7. Experiential Learning

- **Syringe Experiment:** Air compressible, water not.
  - **Incense Stick:** Diffusion of gases.
  - **Balloon in Hot Water:** Gas expansion.
- 

## 8. Art Integration

- Role-play/dance as particles.
  - Diagram posters of states of matter.
  - Clay/beads model-making of particle arrangements.
- 

## 9. Recapitulation (Quick Recall)

- Ice cube, milk, perfume → classify into solid, liquid, gas.
  - Why does sugar disappear in water?
  - Why can we smell food being cooked from far away?
- 

## 10. Assignment (Homework)

1. Draw diagrams of particle arrangements in solids, liquids, and gases.
  2. List 5 real-life examples of diffusion.
  3. Research: Why does seawater taste salty though salt is invisible?
- 

## 11. Learning Outcomes

Students will be able to:

- Describe that matter is made of particles.
  - Demonstrate experiments to prove particle nature.
  - Compare solids, liquids, and gases.
  - Apply concepts to real-life.
-

## 12. Application in Real Life

- Smell of perfume spreading.
  - Dissolving sugar/tea in water.
  - Evaporation of wet clothes.
  - Air filling balloons/tyres.
- 

## 13. Resources

- Textbook *Curiosity, Grade 8*
  - NCERT Exemplar
- 

## 14. Co-Scholastic Areas

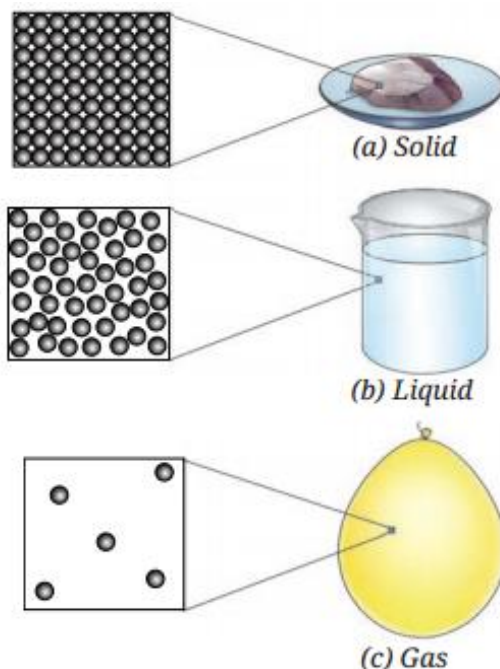
- **Life Skills:** Teamwork, critical thinking.
  - **Values:** Patience, curiosity, safety.
  - **Art:** Poster-making, particle role-play.
- 

## 15. Remedial Teaching

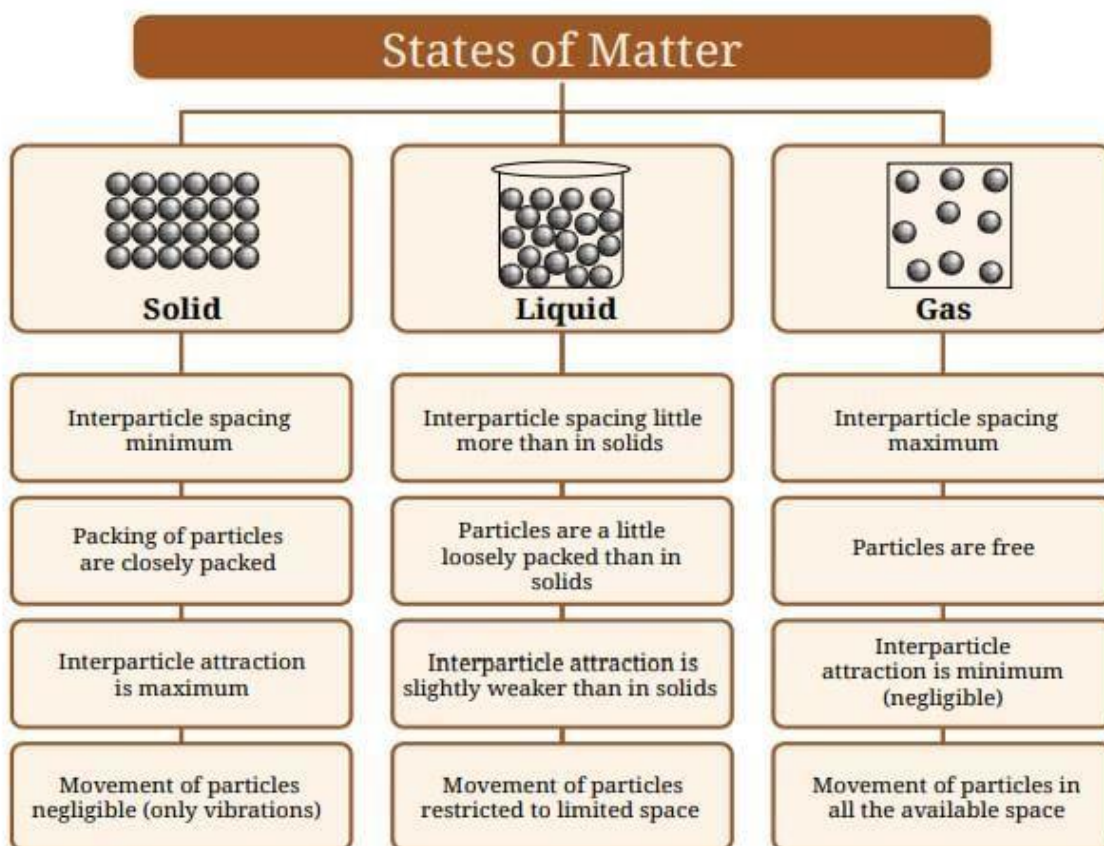
- Use diagrams & simple visuals for slow learners.
  - Explain in local language if needed.
  - Repeat activities with teacher support.
- 

## 16. Inclusive Practices & Equal Participation

- Mixed-ability group work.
  - Ensure quiet/shy students get roles in art/role-play.
  - Use multilingual explanations where needed.
  - Promote equal participation without discrimination.
-



*Magnified schematic pictures of interparticle spacing in the three states of matter*



## Lesson Plan

Month: October

Subject: Science

Class: 8

Chapter: Nature of Matter — Elements, Compounds, and Mixtures

Duration: 15 days

---

### 1. Learning Objectives

By the end of the lesson, students will be able to:

1. Differentiate between elements, compounds, and mixtures with examples.
  2. Classify everyday materials into pure substances and mixtures.
  3. Describe the difference between uniform (homogeneous) and non-uniform (heterogeneous) mixtures.
  4. Conduct simple experiments to observe physical and chemical changes in matter.
  5. Relate concepts of matter to real-life applications in environment, health, and industry.
- 

### 2. Previous Knowledge Testing

- Ask: “*What is matter? Can light or air be called matter?*”
  - Quick recall quiz: Students identify whether given items (sugar, water, air, gold, sound) are matter or not.
  - Discuss what students already know about **particles** from previous grades.
- 

### 3. Important Spellings

- Matter
- Mixture
- Compound
- Element

- Alloy
  - Homogeneous
  - Heterogeneous
  - Molecule
  - Atom
- 

#### 4. Explanation with Innovative Methods

- **Food Analogy:** Compare *sprout salad (heterogeneous)* and *lemonade (homogeneous)* mixtures.
  - **Role Play:** Students act as “atoms” forming elements, then join hands to make “compounds” and “mixtures.”
  - **Digital/Visual Aid:** Show images of alloys (brass, bronze, stainless steel) and ask students where they’ve seen them in real life.
- 

#### 5. Teaching Procedure

1. **Introduction (5 min):** Begin with curiosity questions like “*Is air a mixture or a compound?*”.
2. **Concept Development (15 min):**
  - Explain mixtures → demonstrate with sugar in water (uniform) and sand in water (non-uniform).
  - Explain pure substances → contrast “scientific pure” with “market pure” (milk, ghee, etc.).
  - Introduce elements & compounds → demonstrate activity of passing electricity through water.
3. **Activity (10 min):** Simple group experiment: Mix iron filings with sulfur (Sample A) and heat to form iron sulfide (Sample B). Compare properties.
4. **Discussion (5 min):** Relating matter to **daily life** (medicines, building materials, environment).

5. **Recapitulation (3 min):** Quick-fire Q&A: “Is salt an element, compound, or mixture?”
- 

## 6. Student Participation

- Group classification game: Teacher shows items (chalk, steel spoon, juice, air), students hold up cards labeled *Element / Compound / Mixture*.
  - Debate: “Which is more important in daily life — elements, compounds, or mixtures?”.
- 

## 7. Experiential Learning

- Hands-on experiments: lime water test for  $\text{CO}_2$ .
  - Real-world connection: Checking food packets for “ingredients” to identify mixtures and compounds.
- 

## 8. Art Integration

- **Comic Strip Task:** Students draw a cartoon showing “atoms” becoming elements, “friends holding hands” becoming compounds, and “friends in a group” representing mixtures.
  - Create Dhokra art (metal alloys) inspired designs to integrate cultural heritage.
- 

## 9. Recapitulation

- Rapid questioning:
    1. Define mixture with an example.
    2. Differentiate between element and compound.
    3. Why is water called a compound?
    4. Give one example of an alloy.
- 

## 10. Assignment

- Classify the following into elements, compounds, or mixtures: **carbon dioxide, gold, salt, seawater, milk, oxygen, brass, sugar.**
  - Prepare a chart showing *10 examples* each of elements, compounds, and mixtures from daily life.
- 

## 11. Learning Outcomes

Students will:

- Explain differences between elements, compounds, and mixtures.
  - Demonstrate experiments safely.
  - Apply scientific classification to real-life objects.
  - Appreciate India's scientific heritage and art integration with alloys and crafts.
- 

## 12. Application in Real Life

- Understanding air quality (mixture of gases) and pollution.
  - Recognizing alloys in utensils, buildings, and coins.
  - Food industry — mixtures vs pure substances.
  - Environmental science — compounds that absorb CO<sub>2</sub>.
- 

## 13. Resources

- Textbook *Curiosity — Science Grade 8*.
  - NCERT Exemplar
- 

## 14. Co-Scholastic Areas

- Teamwork in group experiments.
  - Creativity in art integration.
  - Communication skills in debate.
-

## **15. Remedial Teaching**

- Provide concrete examples with real objects for weaker learners.
  - Use visual aids and drawings to simplify abstract concepts.
  - Peer tutoring — stronger students explain to peers.
- 

## **16. Inclusive Practices**

- Ensure all students get a role in activities (mixing, recording, explaining).
  - Provide oral, visual, and kinesthetic modes of learning.
  - Use simple language for learners with difficulty in science vocabulary.
  - Celebrate every student's participation equally.
-

## Lesson Plan

Month: October

Subject: Science

Class: 8

Chapter: The Amazing World of Solutes, Solvents, and Solutions

Duration: 15 days

---

### 1. Learning Objectives (Specific & Measurable)

By the end of the lesson, students will be able to:

1. Define **solute, solvent, and solution** with examples.
  2. Differentiate between **uniform and non-uniform mixtures**.
  3. Conduct experiments to explain **solubility and saturation**.
  4. Understand **factors affecting solubility** (temperature, concentration).
  5. Apply the concept of **density** to explain floating and sinking.
  6. Relate scientific concepts to **daily life applications** (ORS, Gulab jamun syrup, floating boats, ice on water).
- 

### 2. Previous Knowledge Testing

- Teacher asks quick questions:
    - What happens when sugar is mixed in tea?
    - Why does sawdust float on water but sand sinks?
    - Have you ever tasted ORS? Did it taste the same in every sip?
- 

### 3. Important Spellings / Vocabulary

- Solute
- Solvent
- Solution

- Concentration
  - Solubility
  - Saturated / Unsaturated
  - Density
  - Meniscus
- 

#### 4. Explanation with Innovative Methods

- **Storytelling Approach:** Begin with a real-life situation — “You added too much sugar to your tea, but it stopped dissolving. Why?”
  - **Demonstration:** Teacher performs *Activity 9.1* (adding salt to water until saturation).
  - **Visual Learning:** Show textbook diagrams (uniform vs. non-uniform mixtures).
  - **Analogies:** Compare density with a crowded vs. empty bus.
  - **Art Integration:** Students make a poster showing “Solutions in Our Daily Life” (ORS, juice, saltwater, perfumes, air).
- 

#### 5. Teaching Procedure

1. **Introduction (5 min):** Start with curiosity-based questions from the textbook.
  2. **Demonstration (10 min):** Show experiments on solubility & saturated solutions.
  3. **Discussion (10 min):** Involve students in explaining why oil floats on water, why ice floats, etc.
  4. **Group Activity (10 min):** Each group tests different mixtures (sand + water, sugar + water, chalk + water) and classifies them.
  5. **Explanation & Note-making (5 min):** Teacher summarizes using board & textbook.
- 

#### 6. Participation of Students

- Hands-on experiments in small groups.
- Peer explanation (students describe in their own words).

- Sharing observations in class.
- 

## 7. Experiential Learning

- Preparing ORS solution and tasting it to understand uniform mixing.
  - Measuring density using water displacement method (Activity 9.7).
- 

## 8. Art Integration

- Drawing diagrams of **solute-solvent-solution** on chart.
  - Poster-making: “Why do some objects float and some sink?”
  - Role-play: One student acts as *solute*, another as *solvent*, and they “mix” to form a *solution*.
- 

## 9. Recapitulation (Quick Review)

- Teacher asks:
    - What is a solution?
    - What is the difference between saturated and unsaturated solutions?
    - Why does ice float on water?
    - Give an example of a gaseous solution.
- 

## 10. Assignment

1. State whether the following are true or false:
    - Oxygen dissolves more in hot water than in cold water.
    - Sand and water make a uniform mixture.
  2. Draw and label a diagram showing **solute evenly distributed in a solvent**.
  3. Investigate at home: Does sugar dissolve faster in cold water or hot water? Record observations.
-

## 11. Learning Outcomes

After the lesson, students will:

- Identify solute, solvent, and solutions in daily life.
  - Perform experiments to show solubility and density.
  - Explain why objects float/sink.
  - Connect science concepts with **health (ORS), food (Gulab jamun syrup), and environment (aquatic life)**.
- 

## 12. Application in Real Life

- ORS during dehydration.
  - Making sugar syrup in sweets.
  - Understanding pollution's effect on aquatic life (oxygen solubility).
  - Hot air balloons rising due to low density.
- 

## 13. Resources

- Textbook (Curiosity – Science for Grade 8)
  - NCERT Exemplar
- 

## 14. Co-Scholastic Areas

- Teamwork & Collaboration during experiments.
  - Critical thinking in group discussions.
  - Creativity through art-integration posters.
- 

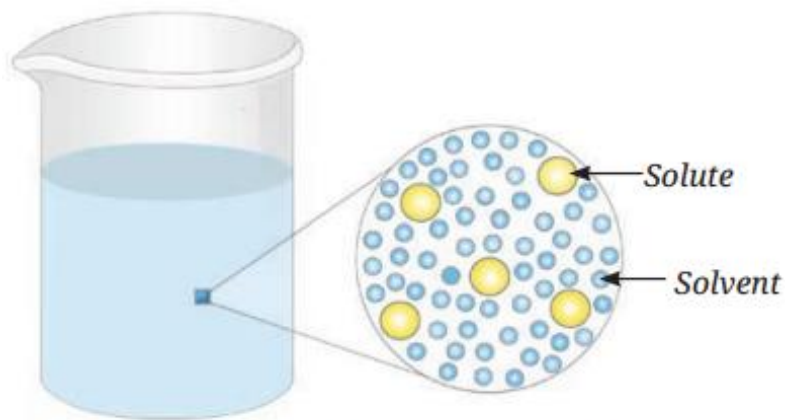
## 15. Remedial Teaching

- Simplify terms with local language translation.
- Use visuals & real objects (sugar, salt, ORS) for weaker students.

- Provide extra practice with **True/False & Fill in the blanks** from textbook.
- 

## 16. Inclusive Practices

- Ensure equal participation of all students (girls/boys, shy/outgoing, special needs).
  - Provide peer support & buddy system.
  - Give extra time for writing or oral responses to students who need it.
- 



*Magnified schematic picture of a solute evenly distributed in a solvent*

## Lesson Plan

**Month:** November

**Grade:** 8

**Subject:** Science

**Chapter:** Light: Mirrors and Lenses

**Duration:** 15 days

---

### 1. Learning Objectives (Specific & Clear)

By the end of the lesson, students will be able to:

1. Differentiate between concave, convex, and plane mirrors with examples from daily life.
  2. Demonstrate how spherical mirrors form images (erect/inverted, magnified/diminished).
  3. State and apply the **laws of reflection** with experimental validation.
  4. Explain the function of convex and concave lenses in everyday applications (spectacles, magnifying glass, cameras, microscopes).
  5. Relate mirror/lens usage to real-life applications such as road safety mirrors, dental tools, solar cookers, and eyeglasses.
- 

### 2. Previous Knowledge Testing

- Teacher asks:
    - “What happens when you look into a **plane mirror** at home?”
    - “Where have you seen mirrors used in vehicles?”
    - “Have you used a magnifying glass before?”
  - Quick recall quiz: *Plane mirror* → *erect image, same size*.
- 

### 3. Important Spellings & Keywords

- Concave, Convex, Plane mirror

- Reflection, Refraction
  - Incidence, Normal, Diverge, Converge
  - Magnified, Diminished
  - Lens, Focal point
- 

#### 4. Innovative Explanation Methods

- **Storytelling Approach:** Narrate *Meena's visit to the Science Centre* (from textbook) where she discovers strange images in curved mirrors.
  - **Demonstration:** Use a **metal spoon** to show concave/convex reflections.
  - **Digital Integration:** Show a short animation/simulation of how images form in concave vs convex mirrors.
- 

#### 5. Teaching Procedure

##### 1. Introduction (5 min)

- Begin with curiosity questions: “Why do car mirrors say *Objects in mirror are closer than they appear?*”

##### 2. Demonstration (10 min)

- Use spoon + torch to explain concave/convex images.
- Activity from textbook (placing toy in front of concave/convex mirrors).

##### 3. Concept Building (10 min)

- Laws of reflection explained with torch, comb, and mirror.
- Students draw incident/reflected rays in notebooks.

##### 4. Art Integration (5 min)

- Students sketch concave/convex mirrors and lenses in their notebooks.
- Creative task: draw a comic strip showing themselves in a funhouse mirror.

##### 5. Student Participation (5 min)

- Group discussion: Identify real-life uses of mirrors & lenses.

- One student shares, others add.
- 

## 6. Experiential Learning

- Hands-on: Burning paper with concave mirror or convex lens (teacher demonstration, safety ensured).
  - Virtual experiment: Online mirror/lens simulation.
- 

## 7. Art & Interdisciplinary Integration

- **Art:** Draw diagrams of light rays, design a solar cooker with mirrors.
  - **Maths:** Use protractors to measure angle of incidence = angle of reflection.
  - **History:** Mention Bhāskara II's use of water bowls for reflection (from textbook).
- 

## 8. Recapitulation (Quick Recall)

- “One word answers”:
    - Mirror in dentist's tool → ? (Concave)
    - Mirror in car's side view → ? (Convex)
    - Laws of reflection → ?
    - Magnifying glass lens → ? (Convex)
- 

## 9. Assignment / Homework

1. Collect examples of **mirrors and lenses at home** (camera, spectacles, shaving mirror, torch). Classify as **concave/convex/plane**.
  2. Draw a labelled diagram showing **image formation in concave and convex mirrors**.
  3. Creative task: Write a short note *“If my spectacles could talk, what would they say?”*
- 

## 10. Learning Outcomes

Students will:

- Confidently **identify and differentiate** between types of mirrors and lenses.
  - Apply laws of reflection in **practical experiments**.
  - Explain **real-life applications** (dentistry, road safety, optical instruments).
  - Integrate **science with art, math, and daily life**.
- 

### 11. Real-Life Application

- Convex mirrors → road safety, surveillance.
  - Concave mirrors → headlights, solar cookers, dental mirrors.
  - Lenses → spectacles, microscopes, cameras, eyes.
- 

### 12. Resources Needed

- NCERT Curiosity
  - NCERT Exemplar
- 

### 13. Co-Scholastic Areas

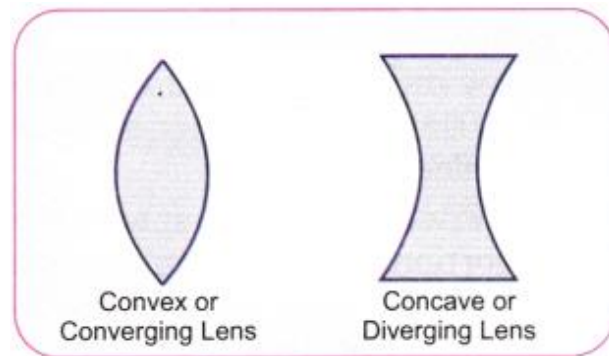
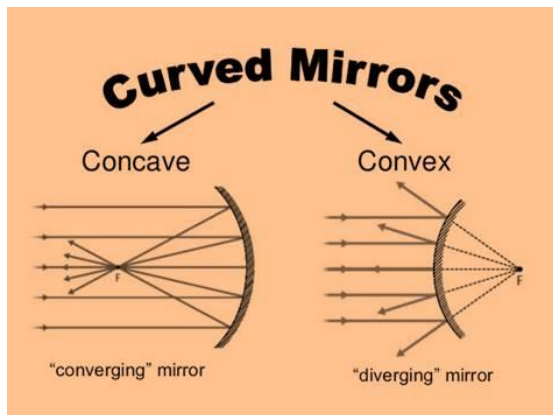
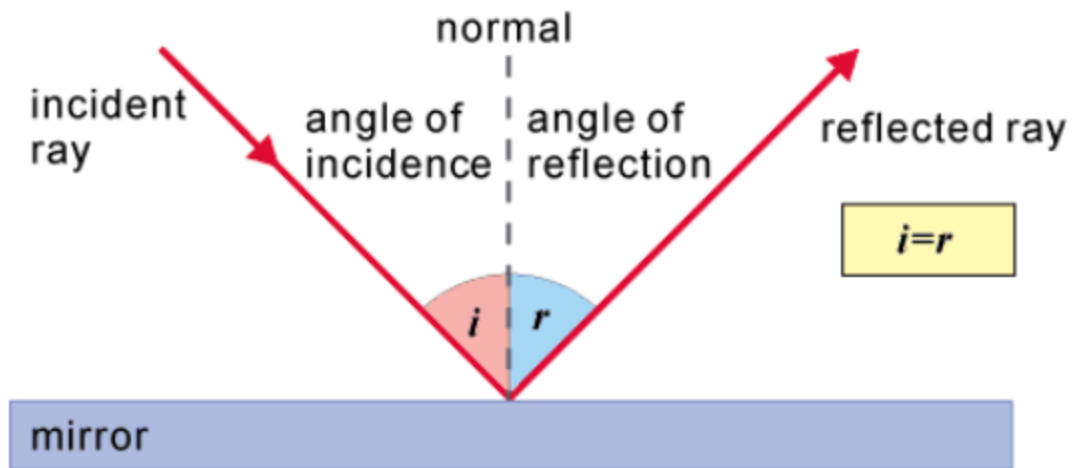
- **Creativity:** Comic strip drawing.
  - **Collaboration:** Group discussions.
  - **Critical Thinking:** Designing solar cooker.
  - **Values:** Energy conservation through solar devices.
- 

### 14. Remedial Teaching

- Use simple daily-life examples (e.g., shaving mirror, spectacles).
  - Provide worksheets with diagrams for weaker students.
  - Pair slow learners with peers for activity support.
-

## 15. Inclusive Practices

- Encourage all students to participate (girls, boys, diverse backgrounds).
  - Provide tactile models (convex/concave lens cut-outs) for differently-abled students.
  - Use bilingual explanation where needed.
- 



## Lesson Plan

**Month:** November – December

**Grade:** 8

**Subject:** Science

**Chapter:** Keeping Time with the Skies

**Duration:** 15 days

---

### 1. Learning Objectives

By the end of this lesson, students will be able to:

1. Explain how and why the **phases of the Moon** occur.
  2. Differentiate between **lunar, solar, and luni-solar calendars**.
  3. Relate astronomical phenomena to **festivals and daily life**.
  4. Identify the role of **artificial satellites** in modern society.
  5. Develop curiosity and observation skills through **hands-on and experiential activities**.
- 

### 2. Previous Knowledge Testing

- Ask:
  - “Have you seen the Moon during the day? Why do you think that happens?”
  - “How do we know when to celebrate festivals like Diwali or Eid?”
  - “How did people measure time before clocks were invented?”

Students share personal experiences to connect prior knowledge with the new topic.

---

### 3. Important Spellings

Students will note and practice:

- **Waxing**
- **Waning**

- **Crescent**
  - **Gibbous**
  - **Amavasya**
  - **Purnima**
  - **Luni-solar**
  - **Satellite**
  - **Equinox**
  - **Solstice**
- 

#### **4. Innovative Explanation Methods**

- **Storytelling:** Begin with Meera's story from the textbook (Patang Mahotsav & spotting the Moon).
  - **Role Play:** Students act as Earth, Sun, and Moon using torchlight and a ball to demonstrate phases.
  - **Tech Integration:** Show a short animated video/AR app of Moon phases and satellite orbits.
  - **Analogy:** Compare Moon phases to slicing an apple (sometimes full slice visible, sometimes a part).
- 

#### **5. Teaching Procedure**

##### **Step 1 – Introduction (5 min)**

- Start with a riddle: *"I change my shape but I am not alive, I shine but I have no light of my own. Who am I?"*

##### **Step 2 – Exploration (15 min)**

- **Activity 11.2 recreation:** Torch (Sun), Ball (Moon), Student (Earth).
- Observe illuminated and dark portions.

##### **Step 3 – Explanation (15 min)**

- Discuss **phases of the Moon** → New Moon, Crescent, Half, Gibbous, Full.
- Show how **waxing** = increasing and **waning** = decreasing brightness.

#### Step 4 – Application (20 min)

- Link to **calendars**: Lunar months, Solar year, Indian National Calendar.
  - Connect to **festivals** (Diwali, Eid, Makar Sankranti).
  - Explain **artificial satellites** and their uses (ISRO, GPS, weather, communication).
- 

#### 6. Student Participation

- Students physically model the Earth–Moon–Sun system.
  - Group work: create a **table of Moon phases** for 7 days by observation homework.
  - Peer questioning: “What would happen if Earth had two moons?”
- 

#### 7. Experiential Learning

- Outdoor shadow experiment with a stick to track the **solar day**.
  - Observing **moonrise/moonset times** using a newspaper or astronomy app.
- 

#### 8. Art Integration

- **Drawing**: Phases of the Moon in notebooks.
  - **Dance/Music**: Show classical mudras (Chandrakala, Ardhachandra) or ragas like Chandrakauns.
  - **Craft**: Make Moon phases with black/white paper cutouts.
- 

#### 9. Recapitulation

Quick Quiz:

1. What causes Moon phases?
2. How long does one Moon cycle take?

3. Which calendar do we follow in India for official use?
  4. Name two uses of artificial satellites.
- 

### 10. Assignment

- Homework: Record the Moon's shape for 5 consecutive nights and sketch it.
  - Research: Find which Indian states celebrate New Year with solar vs. lunar calendars.
- 

### 11. Learning Outcomes

Students will be able to:

- Demonstrate understanding of **Moon phases and timekeeping**.
  - Apply knowledge of **calendars to festivals**.
  - Appreciate the **role of science in culture, art, and technology**.
- 

### 12. Application in Real Life

- Farmers track **seasons** for crops.
  - Festivals depend on **lunar/solar cycles**.
  - **Mobile phones, TV, and GPS** work because of satellites.
- 

### 13. Resources

- NCERT Curiosity
  - NCERT Exemplar
- 

### 14. Co-Scholastic Areas

- **Observation skills** (science activity).
- **Creativity** (art integration).

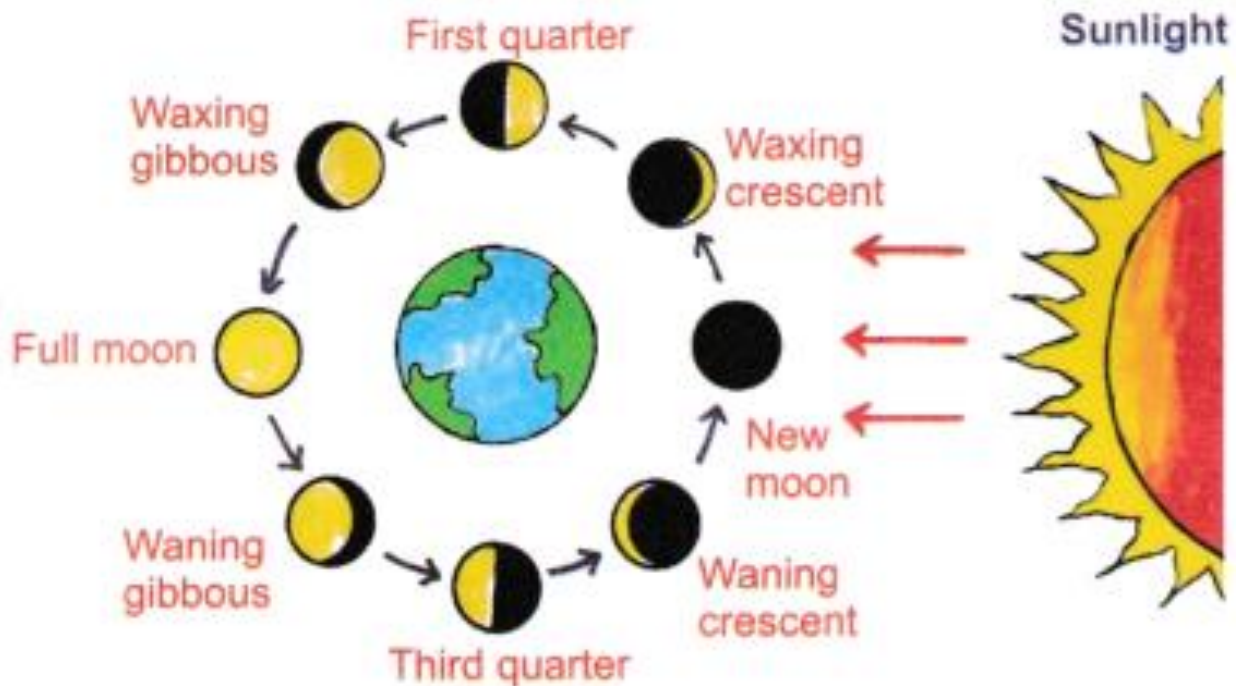
- **Teamwork** (role play & group work).
  - **Communication** (sharing observations).
- 

### 15. Remedial Teaching

- Use **pictures/animations** for slow learners.
  - Vocabulary support for spellings.
  - Pairing strong & weak students for peer learning.
- 

### 16. Inclusive Practices

- Group activities ensuring **every child participates**.
  - Encouraging answers from shy students.
  - Visual + auditory + kinesthetic methods for different learning needs.
- 



## Lesson Plan

**Month:** December

**Grade:** 8

**Subject:** Science

**Chapter:** How Nature Works in Harmony

**Duration:** 15 days

---

### 1. Learning Objectives

By the end of this lesson, students will be able to:

1. Differentiate between **biotic** and **abiotic** components of ecosystems.
  2. Explain the concept of **population, community, ecosystem, food chain, and food web** with examples.
  3. Analyze how **human activities affect ecosystems** (e.g., deforestation, pesticides, pollution).
  4. Interpret **interdependence in nature** through mutualism, commensalism, and parasitism.
  5. Apply the concept of ecosystem balance to **real-life environmental issues** (e.g., elephant corridors, mangroves, sustainable farming).
- 

### 2. Previous Knowledge Testing

- Q1: What do plants need for survival?
  - Q2: Can you name one herbivore and one carnivore from your surroundings?
  - Q3: What happens if too many trees are cut in a forest?
  - Small activity: Show two pictures (pond & forest) and ask students to list living and non-living components.
- 

### 3. Important Spellings

- Ecosystem

- Population
  - Community
  - Decomposers
  - Symbiosis
  - Biodiversity
  - Sustainable
  - Habitat
- 

#### 4. Explanation with Innovative Methods

- **Storytelling:** Start with the story of elephants entering farms due to loss of forests.
  - **Role-play:** Assign roles (sun, tree, deer, tiger, soil, water, fungi) and create a living model of an ecosystem.
  - **Concept Mapping:** Use board/chart to connect “sun → plants → animals → decomposers → soil → plants again.”
  - **Think-Pair-Share:** Pose the question “*Can humans survive without nature?*”
- 

#### 5. Procedure

1. **Introduction (5 mins):** Curiosity questions from textbook (Probe & Ponder).
  2. **Exploration (10 mins):** Group activity – identifying local habitats and their biotic/abiotic components.
  3. **Explanation (10 mins):** Teacher explains populations, communities, food chains & webs with diagrams.
  4. **Interactive Activity (10 mins):** Students build a food web on chart paper with cut-outs of organisms.
  5. **Discussion (5 mins):** Human-made vs natural ecosystems.
- 

#### 6. Participation of Students

- Group discussions & chart-making.
  - Role-play (ecosystem drama).
  - Students frame their own questions (from “Keep the Curiosity Alive” section in textbook).
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## 7. Experiential Learning

- Visit to school garden / nearby park to observe real biotic & abiotic components.
  - Data collection: Count plants/ants/birds in a 1 m<sup>2</sup> patch (link to Activity 12.2).
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## 8. Art Integration

- Draw a food chain and food web (poster-making).
  - Create a 3D model of a mini-ecosystem (shoebox terrarium with soil, plant, water, toy animals).
  - Tribal art on how communities worship animals like tigers or elephants (cross-curricular with Social Science).
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## 9. Recapitulation

- Quick quiz (True/False, Fill in the blanks).
  - Example:
    1. Producers are always at the \_\_\_ trophic level.
    2. A community is smaller/larger than a population.
    3. Decomposers recycle nutrients into the \_\_\_.
- 

## 10. Assignment

- Homework: Draw a **food web** of any local ecosystem (garden/pond/field).
  - Short report: “*Why are mangroves important for coastal areas?*”
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## 11. Learning Outcomes

Students will be able to:

- Classify components of ecosystems.
  - Demonstrate understanding of food chains/webs.
  - Relate ecosystem balance to human survival.
  - Show awareness of sustainable practices.
- 

## 12. Application in Real Life

- Understanding crop damage due to ecosystem imbalance.
  - Conserving forests to protect elephant corridors.
  - Practicing sustainable farming and reducing pesticide use.
  - Waste segregation & composting as real-life decomposition.
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## 13. Resources

- Science textbook (Curiosity)
  - NCERT Exemplar
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## 14. Co-Scholastic Areas

- **Values:** Respect for nature, empathy towards animals.
  - **Life Skills:** Observation, critical thinking, teamwork.
  - **Art & Culture:** Tribal traditions, eco-art, role-play.
- 

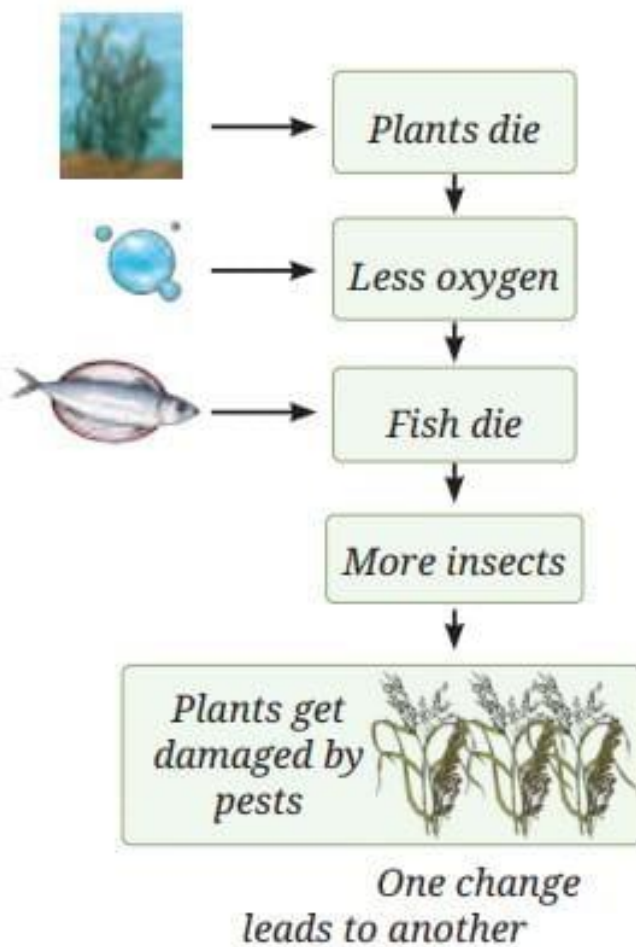
## 15. Remedial Teaching

- Use simple diagrams for weaker students.
- Provide a word bank of spellings.
- Encourage peer support during group work.

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## 16. Inclusive Practices

- Mixed-ability groups for activities.
  - Visual aids & hands-on tasks for learners with reading difficulties.
  - Encourage every child to share at least one observation.
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## **Lesson Plan**

**Month:** January

**Grade:** 8

**Subject:** Science

**Chapter:** Our Home – Earth, a Unique Life Sustaining Planet

**Duration:** 15 days

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### **1. Learning Objectives (Specific)**

By the end of this lesson, students will be able to:

1. Explain why Earth is unique compared to other planets in the solar system.
  2. Identify key factors that make Earth suitable for life (distance from Sun, atmosphere, size, magnetic field, water, balance of systems).
  3. Describe how living and non-living components (biosphere, hydrosphere, geosphere, atmosphere) interact to sustain life.
  4. Recognize threats to life on Earth (climate change, biodiversity loss, pollution) and suggest sustainable practices.
  5. Relate scientific concepts to real-life environmental issues and responsibilities.
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### **2. Previous Knowledge Testing**

- Q1: Why is water important for living beings?
  - Q2: Which planet is known as the Blue Planet?
  - Q3: What is the greenhouse effect?
  - Q4: How do plants and animals depend on each other?
- 

### **3. Important Spellings**

- Atmosphere
- Hydrosphere
- Biosphere

- Geosphere
  - Habitable zone
  - Reproduction
  - Biodiversity
  - Sustainability
- 

#### 4. Explanation with Innovative Methods

- **Analogy:** Earth's crust as the *thin skin of an apple*.
  - **Demonstration:** Use a magnet to show Earth's magnetic field concept.
  - **Roleplay:** Students act as "Earth systems" (air, water, soil, plants, animals) showing interdependence.
  - **Visuals:** Show satellite images/ISRO's Earth mosaic to highlight Earth's beauty and uniqueness.
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#### 5. Procedure

1. **Introduction (5 min):** Start with the question "*If Earth disappeared tomorrow, could we live on another planet?*"
  2. **Concept Building (15 min):** Teacher explains uniqueness of Earth (distance from Sun, atmosphere, size, water, magnetic field).
  3. **Interactive Activity (10 min):** Group work – students fill in "Why Earth is Special?" chart.
  4. **Discussion (10 min):** Talk about threats (pollution, climate change, biodiversity loss). Connect with SDGs (Sustainable Development Goals).
  5. **Closure (5 min):** Quick recap using "Earth Quiz" (true/false + one open-ended).
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#### 6. Student Participation

- Think-Pair-Share on "What if Earth had no atmosphere?"
- Drawing/poster making of "Earth Survival Kit" (from textbook activity).

- Debate: *Is Mars a future home for humans?*
- 

## **7. Experiential Learning**

- Students observe a potted plant's needs (water, sunlight, soil) → link to Earth's life-support system.
  - Simple greenhouse experiment with a glass jar covering a plant to demonstrate trapped heat.
- 

## **8. Art Integration**

- Poster making: "*Save Our Earth*".
  - Poetry/song writing on *Earth as our Mother*.
  - 3D model (clay/apple activity showing Earth's crust).
- 

## **9. Recapitulation**

Teacher asks:

- Why is Earth called the Blue Planet?
  - What protects Earth from harmful solar radiation?
  - Name any two threats to life on Earth.
- 

## **10. Assignment**

- Write 5 ways you can help reduce pollution in your surroundings.
  - Research and note down 3 differences between Earth and Venus.
- 

## **11. Learning Outcomes**

Students will be able to:

- Demonstrate understanding of Earth's uniqueness.
- Connect textbook concepts to real-world issues.

- Develop critical thinking about sustainability.
  - Show responsible behavior towards environment.
- 

## **12. Application in Real Life**

- Saving electricity and water.
  - Planting trees to maintain oxygen balance.
  - Saying no to plastic and promoting recycling.
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## **13. Resources**

- Grade 8 Science Textbook (Curiosity – Chapter 13)
  - NCERT Exemplar
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## **14. Co-Scholastic Areas**

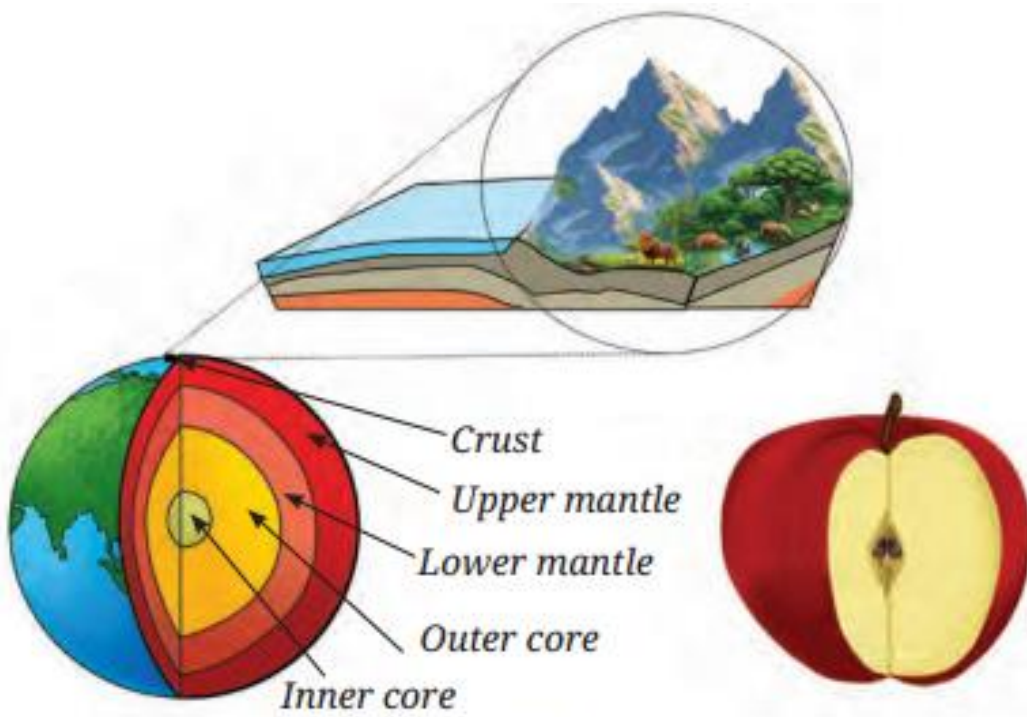
- Value education (responsibility towards environment).
  - Teamwork (group discussions).
  - Creativity (poster making, roleplay).
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## **15. Remedial Teaching**

- Use diagrams/videos for slow learners.
  - Peer teaching – stronger students help weaker peers.
  - Simplified keywords + bilingual explanation if needed.
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## **16. Inclusive Practices**

- Group activities mixing all learning levels.
- Ensuring participation of every child without bias.
- Providing extra time/support for differently-abled students.



*The Earth's crust is like the thin skin of an apple*