DERT
DIRECTORATE OF EDUCATIONAL
RESEARCH & TRAINING

Reach to Teach

CM IMPACT
Meghalaya Class Readiness Programme

IMPACT II
CHIEF MINISTER'S INITIATIVE TO MAXIMIZE PASS ACHIEVEMENT AND CLASSROOM TRIUMPH

CLASS 9

3 WEEKS

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Published by DERT, Shillong
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Printed in India

MESSAGE

With the adoption of the National Education Policy (NEP) 2020 and its recommendations to transform school education, the Government of Meghalaya is committed to significantly improving the education landscape of the State. Our primary objective is to ensure that every child in Meghalaya receives quality education in an inclusive and equitable environment.

In our effort to reimagine education, we are keen on adopting innovative measures that address the unique challenges faced by our State. Our collaboration with Reach to Teach Foundation for Meghalaya Comprehensive School Transformation Programme has further strengthened this vision. One of the interventions towards realising our vision is the Meghalaya Class Readiness Programme (MCRP).

Designed to address the learning gaps among students and rebuild foundational skills, the MCRP integrates innovative methods such as activity-based and experiential activities rooted in Meghalaya's context to make education engaging and relatable for students.

I am confident that the concerted efforts of the Education Department, the Directorate of School Education and Literacy, the Directorate of Educational Research and Training (DERT), and our Knowledge Partner, Reach to Teach Foundation, partners will drive this reform successfully. Together, we can lay the groundwork for an education system that equips every student with the skills and knowledge to succeed.

Through collaborative efforts the will to transform the status of education in Meghalaya, these sustained initiatives will not only improve learning outcomes but also ensure that every child can thrive, creating a brighter future for education in our State.

Shri. Vijay Kumar Mantri, IAS
Commissioner and Secretary, Education Department, Government of Meghalaya

MESSAGE

The Government of Meghalaya is committed to transforming education in line with the National Education Policy (NEP) 2020. Our goal is to ensure every child receives quality, inclusive, and equitable education.

To bridge learning gaps and strengthen foundational skills, we have launched the **Meghalaya Class Readiness Programme (MCRP)** in partnership with Reach to Teach Foundation. MCRP integrates activity-based and experiential learning methods rooted in Meghalaya's context, helping students achieve grade-level learning outcomes aligned with NCERT, NIPUN Bharat, and NCF standards.

This initiative is made possible through the dedication of our stakeholders, including the Hon'ble Minister of Education, Shri Rakkam A Sangma and the guidance of Shri Vijay Kumar Mantri, IAS, Commissioner & Secretary, Education Department. We also acknowledge the efforts of the Directorate of Educational Research and Training (DERT) in developing these resources.

We invite teachers, students, parents, administrators and the broader community to collaborate in making the most of this programme. Together, we can build an education system that empowers every child to succeed, shaping a brighter future for Meghalaya.

Shri. R.Rapthap, IAS
Commissioner and Secretary, Education Department (R.R), Government of Meghalaya

MESSAGE

Education is the cornerstone of progress, and the Government of Meghalaya is committed to providing quality education to every child across the State. We acknowledge existing challenges, particularly the learning gaps that have further widened in the years following the Covid-19 pandemic. To tackle these challenges, we aim to create a holistic, flexible, and multidisciplinary framework that addresses the diverse needs of learners, while nurturing essential skills like creativity, collaboration, and adaptability.

The Meghalaya Class Readiness Programme (MCRP) has been launched as a key initiative to help students achieve grade-level Learning Outcomes (LOs) by focusing on pre-requisite LOs and competencies from their previous classes needed to build upon concepts in their current class. These LOs are aligned with national standards set by NCERT, NIPUN Bharat, and the NCF 2023, ensuring integration of national benchmarks with Meghalaya's unique educational context.

The MCRP includes experiential and activity-based learning, core principles of NEP 2020 and NCF 2023. This approach helps students connect academic concepts to real-world situations, fostering deeper learning. The programme provides teachers with detailed, day-wise activities, strategies, tools, and methods to assess student performance. Teachers will be equipped to continuously evaluate current learning levels of their students and implement remedial measures, empowering them as agents of change. This will encourage innovative teaching practices, making learning more engaging and enjoyable.

We express our gratitude to the Directorate of Educational Research and Training (DERT), Shillong, and Reach to Teach Foundation for their invaluable collaboration in developing these resources. Their dedication is pivotal to the success of this initiative. We call on teachers, students, parents, community members, DIET faculty, administrators, and decision-makers to join hands in maximising the impact of this programme. Together, we can ensure every child receives quality education and is well-prepared for challenges and opportunities that lie ahead.

Shri. Swapnil Tembe, IAS
Secretary, Education Department,
Director, School Education & Literacy,
State Project Director, Samagra Siksha Abhiyaan
Government of Meghalaya

MESSAGE

The state of Meghalaya is home to a rich diversity of cultures and traditions, which is reflected in its education system. However, like many regions, our schools have faced unprecedented challenges in recent years. The disruptions caused by the COVID-19 pandemic, coupled with pre-existing geographical and infrastructural barriers, have significantly impacted the learning outcomes of our students. The closure of schools for extended periods not only interrupted academic progress but also led to a loss of connection with structured learning environments.

Recognising the urgency to address this issue, **the Meghalaya Class Readiness Programme (MCRP)** is being introduced in collaboration with Reach to Teach Foundation to help students recover from the learning losses and to help them achieve grade-level learning outcomes. This four week programme is designed to provide targeted support to teachers to help their students strengthen concepts of previous grades, rebuild core concepts, and to foster engagement in learning.

The MCRP includes activity-based methods and contextually relevant material to ensure students achieve grade-level learning outcomes by doing activities centralised around pre-requisite outcomes. Teachers will play a pivotal role in identifying their students' learning gaps and addressing them through focused interventions in the upcoming academic year.

This initiative is aligned with the objectives of the **National Education Policy 2020** and the **National Curriculum Framework,** both of which emphasise the importance of foundational learning as a critical stage in a child's educational journey. It also reflects the Government's commitment to equitable and inclusive education.

Through our collaborative actions and collective resolve, we are confident that school education in Meghalaya will witness a significant transformation, ensuring that no child is left behind. Through our collective efforts, we can bridge learning gaps and build a brighter, more promising future for the students of Meghalaya.

Smt. R. S. Manners, MCS
Director, Directorate of Educational Research & Training, Shillong

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Meghalaya Class Readiness Programme (MCRP)

Dear Teacher,

It is widely acknowledged that of challenges you grapple with in your classroom, the gaps in your students' learning is a critical one. The prolonged school closures as a result of the COVID-19 pandemic has further exacerbated this gap, leading to students struggling to participate at their grade-appropriate learning levels. The Meghalaya Class Readiness Programme (MCRP) has been designed to address this challenge, as seasonal breaks (vacation) and in some cases the lack of access to learning resources also often contribute to loss in learning. When students return to classrooms after a long break, they may struggle to recall previously learned concepts, leading to a decline in their academic performance and their confidence.

The MMCRP offers class-wise, experiential and activity-based interventions to reinforce pre-requisite skills, and aims to help teachers as well as students settle into the new academic year. The programme ensures that learning remains inclusive and engaging, allowing students to better engage with their class's curriculum.

Given below is some information to help you use this Activity Pack in the most effective way:

1. What is MCRP and what does it cover?

The MCRP is a **bridge course** programme that will run in **primary, upper primary and secondary classes** at the beginning of the academic year. It focuses on enhancing the learning outcomes and competencies of the previous classes, which will help achieve the current grade-level outcomes. The subjects covered in this programme are English, Maths and Science.

The MCRP consists of Activity Packs containing subject-wise and class-wise activities **mapped to learning outcomes and their associated competencies.** These activites cater to pre-requisite LOs, an understanding of which is needed to grasp concepts in the current class. For example, the Activity Pack for Class 5 will contain activies mapped to the LOs of Classes 2, 3 and 4 which will help students better learn Class 5 concepts.

The first four weeks for Classes 1 to 5, and three weeks for Classes 6 to 10 will be earmarked for the MCRP. The objective is to ensure that students, particularly those struggling, acquire the necessary competencies to progress through their classes without difficulty. Activities have been made engaging and include local knowledge that students can relate to, making it easier for them to participate.

For each class, critical learning outcomes have been identified from the Learning Outcomes document developed by NCERT. The criticality of the learning outcomes has been judged based on the **SLAS** and **NAS 2021** results and **prioritising concepts** which are essential for foundational understanding.

2. How will it work – i.e. how it will facilitate learning and recovery?

The MCRP is designed to support teachers to help students bridge learning gaps and regain their confidence. Key ways in which the MCRP facilitates learning and recovery:

a. Activities are tailored to help master essential skills missed during breaks

b. Each week's activities cater to 1 or 2 LOs, and progress from simple to complex

c. Activities integrate local references such as folktales, flora and fauna, making them relatable and meaningful for students

d. Experiential and activity-based modules ensure the course uses storytelling, games, group discussions, and real-life examples to make learning enjoyable

e. The activities will enable students to work together from time to time, which will free you up to help students falling behind

f. The programme incorporates activities rooted in socio-emotional learning to help develop students' confidence, resilience, and adaptability

g. Weekly assessment activities are included in each week to help track progress and identify areas for improvement

After the 4-week programme, you can continue regular classes using school textbooks. Try incorporating the pedagogy followed during MCRP in your regular classes.

3. What do the Activity Packs cover?

The Activity Packs consist of activities designed to keep students engaged for a 35-minute period. Using the Activity Packs, you will:

- Create engaging learning experiences, have discussions and offer explanations where relevant, thereby initiating learning
- Embed Socio-Emotional Learning in your processes. This will involve scope for students to collaborate, share, support each other and so on
- Assess learning every Friday by using the suggested assessment activities, which cater to the learning outcomes addressed in that week

4. How do the Activity Packs enable socio-emotional learning in your classroom?

Social-Emotional Learning (SEL) is the process through which students acquire the knowledge, skills, and attitudes necessary to understand and manage emotions, set and achieve positive goals, build healthy relationships, and make responsible decisions. SEL helps students recognise and regulate their emotions and reducing stress, enabling them to cope better with challenges, such as academic pressures or conflicts with peers.

Specific SEL activities have been included in the Activity Packs for each Class. Creating an environment where students are not afraid to speak is the best way to ensure students's healthy socio-emotional development.

5. How can you implement the Activity Packs effectively?

- ***Plan and prepare:*** Go through activities the previous day/week. This will help you visualise it, familiarise yourself with steps and ensure required preparations (such as the need for material for the activity) are in place.
- ***Smile!:*** This is important – because it will help your students relax and feel at ease. This will help you develop a stronger bond with your students and make you feel happier.
- ***Give clear instructions:*** Do give this part some thought. Recall the times students have been confused and what part of the instructions led to that.
- ***Offer support as needed:*** Encourage students to work on their own. In case some students are unable to respond, or to do what is expected of them, don't get upset. Instead, help them out and give thought to what was holding them back.
- ***Help students work on their own and feel successful:*** It is important that students try to do as much as they can on their own. Make them experience success by offering just enough help and support to make a difference.
- ***Give explanations once students have tried working themselves – don't do this right away:*** Sometimes you may feel the need to 'teach' something immediately to students. However, let students try things out on their own first. This is especially needed as they are 'recovering' learning. If you feel the need to provide explanation, you can do that after students attempt the activity.
- Over the day, it will be good to ***connect one activity with another*** where possible.
- Remember, it is the ***students' role*** to do, think, and reflect on what they have done, and use this to develop their understanding. Your role is to make it interesting and engaging and to develop their understanding.

6. How to use assessments to ensure every student succeeds in the MCRP?

It is important to keep track of how much your students learning. The activities for the last day of the week are Assessment Activities. At the end of each week, you can record student progress in the learning tracker based on the LOs covered. You may recreate the given format in your register or take printouts.

The MCRP is one of the many initiatives taken by the Government of Meghalaya to enhance student learning across the State. This programme will help you enable students to overcome their learning gaps over a period of one month and also help you identify what further support your students require over the academic year. We wish you all the best and look forward to supporting you on this journey of implementing MCRP, making students Class Ready.

Reach to Teach Foundation

3-weeks suggestive Timetable

Time: 35 Minutes / 1 Period

Monday	Tuesday	Wednesday	Thursday	Friday
English	Mathematics	English	Science	Assessment- English, Mathematics and Science
English	Mathematics	English	Science	
Mathematics	Science	Mathematics	Mathematics	
Mathematics	Science	Mathematics	Mathematics	
Science	English	Science	English	
Science	English	Science	English	

Note:

- Follow this Timetable for **first 3 weeks** after school reopen **(10th February - 28th February 2025)**.
- Each week try to allocate **at least 350 minutes per subject**.

Instructions for teachers while conducting any activity in classroom

Before the activity

- Check the Learning Outcomes and Competencies mentioned in the Activity pack for a particular week and day.
- Prepare/ arrange materials, resources, or tools mentioned in activities. Improvise the materials, resources, or tools that are available locally and ensure that the learning outcomes indicated are achieved for each session/ class.
- Plan solutions for potential challenges (e.g. time management, resource allocation, grouping, etc.)
- Communicate the purpose of the activity, rules, roles, and guidelines.

During the activity

- Observe students for active participation and guide if it is needed.
- Encourage collaboration, teamwork, and positive interactions among students.
- Identify students who may need extra support or encouragement.
- Offer constructive feedback, celebrate achievements, and correct misconceptions.

After the activity

- Facilitate a brief discussion on the lesson taught and reflect with the students.
- Summarise key takeaways from the lesson.
- Plan for the next lesson based on the observa on and experience.
- Record the learning levels of the students on the Tracker provided in the activity pack.

A brief note on integrating oracy in classroom transactions

Meghalaya has a rich oral tradition, deeply rooted in its culture, which provides a natural foundation for integrating oracy into classroom learning. Teachers should encourage students to express their thoughts, explain or discuss their answers aloud, or participate in small groups to exchange ideas. This helps to build their confidence and communication abilities. These simple practices not only enhance foundational literacy but also create a vibrant and engaging learning environment. Even in the absence of dedicated activities for speaking and listening, teachers should seamlessly weave oracy into everyday lessons along with listening, reading and writing.

CM IMPACT
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CHIEF MINISTER'S INITIATIVE TO MAXIMIZE PASS ACHIEVEMENT AND CLASSROOM TRIUMPH

ENGLISH

Main Menu

WEEK 1 : DAY 1

Activity 1 Recognising Emotions

35 mins

Learning Objective

At the end of this activity, students will be able to identify different emotions and express these through actions, verbally and in writing.

- Divide the class into small groups (4-5 students).
- Assign each group an emotion (e.g., anger, happiness, sadness, nervousness, excitement) without letting the rest of the groups knowing.
- Tell groups that they have to role-play a scenario, demonstrating how the assigned emotion shows through body language, words, and actions.
- Invite each group to come forward and role play the emotion, while the rest of the class guesses the emotion and discusses its impact on behaviour.
- Ask all the students to write a diary entry about a recent situation where they felt a strong emotion.
  - What did you feel?
  - How did you respond?
  - Could you have responded differently? If yes, how?
- If some students want to share their insights (voluntarily), ask students to come forward and share.

WEEK 1 : DAY 1

Activity 2 The Loyal Mongoose

35 mins

Learning Objective

At the end of this activity, students will be able to understand the main idea of the story, identify character traits and express their opinion about the story.

- Read the following story to the students. Read it in English first then translate to local language, if needed.

The Loyal Mongoose

Once upon a time in a village, there lived a farmer with his wife. One day, they were blessed with a son. The farmer thought to have a pet for the child so as to protect him as well as to get a companion for him. He went in search of the pet and found a mongoose. He brought him to his house.

At first, the farmer's wife was reluctant to have a mongoose as a pet. But later she agreed to it. The mongoose and the child became close friends. Both, the farmer and his wife, started loving the mongoose like their own child. But the farmer's wife was always a little sceptical about the mongoose being near the child.

On a particular day, the farmer's wife had to go to the market to buy vegetables. She told the farmer to take care of the child. The child was sleeping peacefully in the cradle. The farmer then left for begging alms. He thought that the mongoose would look after the child.

A few hours later, the farmer's wife returned and saw the mongoose at the door. His mouth was completely blood-stained. She inferred that the mongoose had killed the child. At once, she threw the basket of vegetables on the mongoose.

She ran towards the room in search of her child and to her surprise, saw the child still sleeping quietly in the cradle. But on the floor was a dead snake which was bitten into pieces.

Then she understood that to save the child, the mongoose attacked and killed the snake. Realising her terrible mistake, she rushed back to the mongoose only to find him dead. The farmer's wife cried aloud as she had killed the loyal mongoose.

- Once the narration is over, ask questions like the ones given below.
  - What are the key characteristics of the mongoose described in the story?
  - What did the farmer's wife bring with her when she went out?
  - What did the mongoose do when he saw the snake approaching the baby?
  - What did you like in the story?
  - Was there something you found funny/silly/irritating?

WEEK 1 : DAY 2

Activity 1 Mind Mapping a Story

35 mins

Learning Objective

At the end of this activity, students will be able to organise information from a story in the form of a mind-map to better understand the story's elements.

- Start by showing an example of a simple mind map and briefly explain its purpose: A mind map helps us organise information visually and see connections between ideas.
- Tell students they'll create a story mind map to understand it better.
- Remind students of the story they read the previous day. You may read the story to them again.

The Loyal Mongoose

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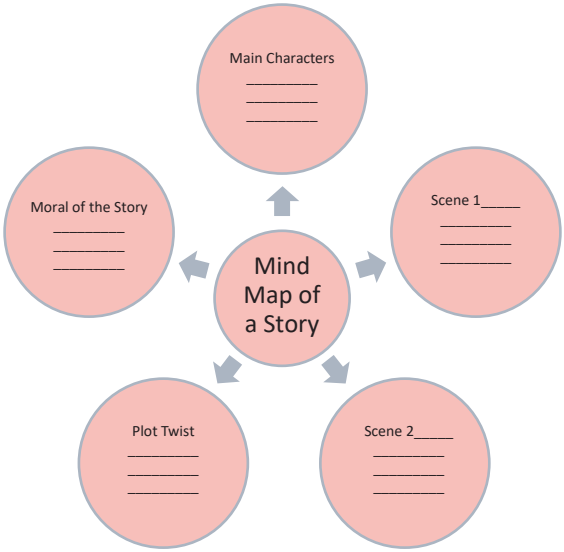
- Once the narration is over, divide students into groups. Ask each group to draw a mind map on a piece of paper. You can draw this mind map on the board:



- Each group has to discuss the various parts of the story and fill in the details in their respective mind maps.
- Groups share their mind maps with the class. Display a few on the board to discuss differences in how the elements are represented.

WEEK 1 : DAY 2

Activity 2 Adverbs

35 mins

Learning Objective

At the end of this activity, students will be able to understand what adverbs are and how to use them accurately and effectively while writing.

- Write a few sentences on the board, such as:
  - She sings **beautifully.**
  - He ran **quickly** to catch the bus.
  - The baby cried **loudly**.
- Ask students to identify the adverbs and discuss what they describe (verb, adjective, or another adverb).
- Briefly review the definition of adverbs with the students.
- Distribute a short paragraph or story with 8-10 adverbs. Example: Y*esterday, the dog barked loudly at a passing car. He often waits patiently by the gate, eagerly hoping for someone to come home.*
- Ask students to come forward and underline an adverb in the text and circle the verb that each adverb modifies.
- Ask students to rewrite 3-5 sentences from the story, replacing the original adverbs with new ones. For example:
  - Original: The dog barked loudly.
  - Rewrite: The dog barked angrily.
- Ask students to share one of their rewritten sentences with the class.

WEEK 1 : DAY 3

Activity 1 Honeybees in Pollination

35 mins

Learning Objective

At the end of this activity, students will be able to understand an analytical passage and the sequence of information, summarise the passage and accurately answer questions based on it.

- Write the following passage on the board for students to read. If students face difficulty understanding some words or phrases, translate it to the local language.

Honeybees are vital to the environment and agriculture because they are primary pollinators for many plants. Pollination occurs when bees collect nectar from flowers, transferring pollen in the process, which helps plants reproduce. Around 70% of the world's crops depend on pollinators like honeybees. However, their population is declining due to habitat loss, pesticide use, and climate change. Protecting honeybees is crucial to maintaining biodiversity and food security. Simple actions such as planting bee-friendly flowers and reducing pesticide use can help save these essential pollinators.

- Once the students have read the paragraph. Write the following questions on the board and ask students to write the answers in their notebooks:
  - Who are the main subjects of the passage?
  - List three reasons why honeybees are important.
  - Identify two threats to honeybees mentioned in the text.
  - Write a one-sentence summary of the passage.
  - Outline the sequence in which the text presents the information (e.g., importance of honeybees → pollination process → threats → solutions).

- Invite a few students to share their answers.

WEEK 1 : DAY 3

Activity 2 Present and Past Tenses

35 mins

Learning Objective

At the end of this activity, students will be able to identify and use verb forms in the present tense and past tense accurately.

- Write the following passage on the board.

Sinita wakes up at 7 a.m. every day. She brushes her teeth, makes a cup of tea, and enjoys breakfast. After breakfast, she walks to the bus stop and catches the 8 a.m. bus to her office. She works as a video designer in a small company. Sinita is always busy with her projects, but she enjoys the challenge.

Yesterday, however, was different. Sinita overslept. She missed the bus and had to take a taxi to work. When she arrived at the office, she realised that she had forgotten an important document at home. She felt stressed but managed to prepare a new one in time for the meeting. By the end of the day, she was exhausted, but she was happy that everything turned out well.

- Begin the class by revising with students' what tenses are. Ask them if they can spot any differences between the 2 paragraphs of the story. Write students' answers on the board.

- Underline a verb in the present tense and circle one in the past tense. Invite students one-by-one and ask them to do the same.

- Write the following sentences on the board and ask the students to choose the correct verb form (present or past tense) to complete the sentences:
  - Sinita _____ (wake/wakes) up at 7 a.m. every day.

- Yesterday, Sinita _____ (oversleep/overslept) because her alarm didn't go off.
- After breakfast, she _____ (walk/walked) to the bus stop.
- She _____ (catch/caught) the 8 a.m. bus today.
- She _____ (forget/forgot) her presentation at home yesterday.
- By the end of the day, Maya _____ (feel/felt) happy that everything turned out well.

WEEK 1 : DAY 4

Activity 1 Meghalaya's Climate

35 mins

Learning Objective

At the end of this activity, students will be able to understand an analytical passage and the sequence of information, summarise the passage and accurately answer questions based on it.

- Write the following passage on the board for students to read. If students face difficulty understanding some words or phrases, translate it to the local language.

Meghalaya, located in northeastern India, is known for its heavy rainfall and cool, temperate climate. It receives some of the highest rainfall in the world, particularly in areas like Mawsynram and Cherrapunji, where rainfall exceeds 11,000 mm annually. The monsoon season, from June to September, brings intense rains, often causing floods and landslides.

The temperature in Meghalaya ranges from 15°C to 24°C year-round, with the coolest months being December and January. The state's unique climate supports a rich variety of plants and animals, but it also presents challenges. The constant rainfall can disrupt daily life and damage infrastructure, especially in rural areas.

- Write the following descriptions on the board and ask students to write their answers to the descriptions:
  - Heavy Rainfall → (Which places receive the highest rainfall?)
  - Temperature Range → (What is the average temperature in Meghalaya?)
  - Monsoon Season → (When does Meghalaya experience intense rainfall?)
- Divide students into groups and ask them to discuss the following: How do you think the heavy rainfall in Meghalaya affects the daily lives of people?
- One representative from the group to come forward and share the points discussed in the group.

WEEK 1 : DAY 4

Activity 2 Adjectives

35 mins

Learning Objective

At the end of this activity, students will be able to understand what adjectives are and how to use them accurately and effectively while writing.

- Write the following passage on the board.

The sun was setting behind the tall, mist-covered mountains of Meghalaya. The sky turned a brilliant orange as the cool, refreshing evening breeze gently rustled the leaves of the lush, green trees. The peaceful valleys below were surrounded by colourful wildflowers, and the chirping of birds filled the air as the stars began to twinkle in the clear, darkening sky. It was a perfect evening in this picturesque state, where nature's beauty seems to touch every corner."

- Begin the class by revising with students' what adjectives are.
- Write a list of nouns: mountains, sky, breeze, trees, valleys, wildflowers, birds, stars, evening on the board. Ask students to share the words that describe the nouns written on the board.
- Tell students: Imagine you are standing in a beautiful location in Meghalaya, such as Cherrapunji or Mawsynram. Write a paragraph describing the scenery using at least five adjectives that you learnt.

WEEK 1 : DAY 5

Assessment 1

70 mins

Competency

C-1.2 Identifies main points, summarises after a careful reading of the text, and responds coherently.

C-5.1 Uses appropriate grammar and structure in their writing.

LO

6.E.LO5: Reads a variety of texts in English / Braille and identifies main ideas, characters, sequence of ideas and events and relates with his/her personal experiences.

6.E.LO12: Writes grammatically correct sentences for a variety of situations, using noun, pronoun, verb, adverb, determiners, etc.

7.E.LO16: Uses appropriate grammatical forms in communication (e.g. Noun, pronoun, verb, determiners, time and tense, passivation, adjective, adverb, etc)

8.E.LO7: Participates in grammar games and kinaesthetic activities for language learning.

1. Ask students to read the following passage. You can write it on the board if needed.

A Walk Through the Old City

On a chilly autumn morning, Maya decided to take a walk through the old city, a place she had always found fascinating. The streets were narrow, with ancient stone buildings that seemed to whisper stories of the past. Colourful leaves danced in the air, adding a splash of life to the otherwise grey surroundings.

As Maya strolled along, she noticed a small bakery in a quiet lane. The aroma of freshly baked bread wafted through the air, drawing her closer. Inside, the bakery was warm and inviting, with shelves lined with bread and delicate pastries. An elderly man with a kind smile greeted her warmly, offering her a leafy and buttery sandwich.

After leaving the bakery, Maya ventured deeper into the city. She passed a lively market where vendors enthusiastically called out to passersby, showcasing vibrant fruits, fragrant spices, and intricately woven fabrics. The chatter of the crowd mixed with the rhythmic clinking of coins and the occasional laughter of children. Maya couldn't help

but stop to admire a stall selling handmade jewellery, its shimmering pieces catching the sunlight beautifully.

As the sun began to set, Maya sat on a bench, taking it all in, feeling a sense of calm she rarely experienced. It had been a day filled with discovery and delight, and she promised herself she would return to the old city soon.

2. Then to check student's comprehension, ask them to write answers for the following questions:
   a. Describe the old city as Maya saw it in the morning.
   b. What drew Maya into the bakery, and how was it described?
   c. What items were being sold at the market? Name at least three.
   d. How did Maya feel when she reached the river? Provide evidence from the text.
   e. What elements of the old city made Maya's experience memorable?

3. Ask students to identify five adjectives and three adverbs in the passage.
4. Ask students to write a short paragraph (4–5 sentences) about a walk they've taken, real or imaginary, using at least three adjectives and two adverbs.

Sample Learning Level Tracker

(Teachers are suggested to maintain this tracker at the end of each week)

LEARNING LEVEL TRACKER

About the Traker: Keep a record of weekly assessment results in the traker. As you conduct assessment based on the activities suggested.

Put a tick mark as per the following:
Level 1 (Needs support): Not able to solve problems and having difficulty comprehending the problem
Level 2 (Satisfactory): Solves most of the problems with external support
Level 3 (Excellent): Solves problems independently with minimum external support

Name of the School	**UDISE**
Name of the Teacher	**District**
Assessment Date	

Roll No.	Name of the Student	Week 1											
		6.E. L05			6.E. L012			7.E. L016			8.E. L07		
		Level 1	Level 2	Level 3	Level 1	Level 2	Level 3	Level 1	Level 2	Level 3	Level 1	Level 2	Level 3

WEEK 2 : DAY 1

Activity 1 Sharing Memories

35 mins

Learning Objective

At the end of this activity, students will be able to write a narrative based on a personal experience with a clearly defined beginning, middle and end.

- Ask students to think about one of the following:
  - A time they achieved something (e.g., winning a competition).
  - A funny or surprising moment they experienced.
- Have a few students come forward and share their experiences briefly (1-2 sentences).
- Write the following topics on the board:
  - A memorable day at school.
  - The first time you tried something new.
  - A short paragraph of a person you admire.
- Tell students that they have to write a paragraph on one of the given topics. Give them some guiding hints which will help them write the paragraph:
  - **Beginning:** Introduce the event/person (who, what, where, when).
  - **Middle:** Describe the main event or action – What happened? – How did you feel?
  - **End:** Conclude with the outcome or why it is important to you.
- Tell students to write the paragraph in 100-120 words.
- Ask a few volunteers to read their stories aloud.

WEEK 2 : DAY 1

Activity 2 The Loyal Mongoose

35 mins

Learning Objective

At the end of this activity, students will be able to write an informal invitation using an appropriate format/structure.

- Begin the activity by asking students, "If you had to invite your friend, to your home to celebrate the Hills Festival, what all information do you think needs to be shared?"
- Write the students' answers on the board. From the answers, give students a small structure of writing informal invitations:
  - A warm greeting (e.g., "Hi Mona,")
  - Purpose (e.g., Hills Festival)
  - Date, time, and venue
  - Fun details (e.g., activities)
  - A closing line (e.g., "Can't wait to see you there!")
- Ask students to write a short invitation to a friend, inviting them to the Hills Festival of Meghalaya.
- Move around in the classroom and help students wherever needed. Ask students to share their invitations by reading aloud, with the whole class.

WEEK 2 : DAY 2

Activity 1 Responding to an Invitation

35 mins

Learning Objective

At the end of this activity, students will be able to respond to an invitation using an appropriate format/ structure.

- Write the following invitation on the board:

Dear Rosa,

You are cordially invited to attend my birthday party on Saturday, 15th March, at 5 PM at my house, 123, Police Bazaar Road, Shillong.
There will be games, food, and lots of fun! Please let me know if you can come.
Looking forward to celebrating with you!

Yours,
David

- Ask students: What details does the invitation include? How might you respond if you are able to attend? What would you write if you are unable to attend?
- Tell students that they have to write a response to the sample invitation. They can choose to accept or politely decline the invitation with a reason. Tell students that they have to follow a similar structure to respond to the invitation. Write a short, polite response (4-5 sentences).
- Ask students to include:
  - A greeting (e.g., "Dear [Host's Name],")
  - Mention of the invitation and your decision.
  - A short explanation if declining.
  - A closing line (e.g., "Looking forward to it" or "Wishing you a great celebration").
- Ask a few students to read their responses aloud.

WEEK 2 : DAY 2

Activity 2 Letter Writing

35 mins

Learning Objective

At the end of this activity, students will be able to write an informal letter using an appropriate format/ structure.

- Write two sentences on the board:
  - "Dear Grandma, I hope you're doing well! I can't wait to visit you next weekend."
  - "Dear Sir, I am writing to request leave for two days due to a family emergency."
- Ask students: Who are these letters addressed to? How does the language differ?
- Share the structure of informal letters with the students:
  - Date
  - Salutation (Dear [Name]).
  - Body (3 short paragraphs).
  - Closing (e.g., Yours lovingly, Best wishes).
- Give a scenario to students and ask them to write a letter to their friend or family member sharing their experience of a recent sports day or a picnic.
- Move around in the classroom and help students wherever needed.

WEEK 2 : DAY 3

Activity 1 Writing a Diary

35 mins

Learning Objective

At the end of this activity, students will be able to understand the purpose of and write a report using an appropriate format.

- Write a sample diary entry on the board and ask students if they can recognise what it is. You can use the diary entry given below or write one of your own.

6th February 2024

Dear Diary,

Today was an amazing day! Our class went on a field trip to the science museum, and I learned so many cool things about space and technology. The best part was trying out the virtual reality experience—it felt like I was floating in space! I'm so glad I got to spend time with my friends and explore something new. I hope we have more trips like this soon.

Goodnight!
Roy

- Pair students up and ask them to come up with the format of a diary entry. Give them a few minutes to do this and ask them to share their answers with the whole class. Write the format on the board for everyone to see.
- Ask students to brainstorm some themes or topics they might write about in their own diaries. Examples could include a memorable day, a special event, a personal achievement, or daily routines.
- Ask students to choose one of the themes/topics and write a diary entry. Encourage them to include details about what happened, how they felt, and why it was important to them.
- Roam around in the classroom and support students as they write.

WEEK 2 : DAY 3

Activity 2 Writing a Report

35 mins

Learning Objective

At the end of this activity, students will be able to understand the purpose of and write a report using an appropriate format.

- Begin the class by asking students about what a report is. Briefly explain what a report is: Formal writing to describe an event or situation.
- Show the template of a short report, e.g.:
  - Title: "Annual Sports Day at Govt. Girls' HSS, Shillong, East Khasi Hills"
  - Introduction: A brief description of the event (what, where, when, and who).
  - Body: Details about the event (activities, key moments, outcomes).
  - Conclusion: How the event ended and its impact.
- Announce a pretend scenario for a school event, such as: "Tree Plantation Drive in Our School"
- Share some key details about the event by writing them on the board:
  - **Tree Plantation Drive**
  - **Date:** December 10, 2024
  - **Guests:** Local community leaders
  - **Activities:** Students planted 50 saplings, awareness speeches, etc.
  - **Outcome:** Increased awareness of environmental issues.
- Write these details on the board.
- Ask students to write a short report based on the event.
- Invite a few students to read their reports aloud.

WEEK 2 : DAY 4

Activity 1 A Memorable Day

35 mins

Learning Objective

At the end of this activity, students will be able to write a narrative based on a personal experience with a clearly defined beginning, middle and end.

- Begin by asking students: “What’s one moment from your life that made you very happy, excited, or even nervous?”
- Encourage a few students to briefly share their answers aloud.
- Tell students that today we will try to write about real events from our lives. Tell them that they will focus on describing what happened, how they felt, and what they learned.
- Share a short example for students to understand better:
  Title: "The Day I Got My First Pet"
  What Happened: "Last year, my parents surprised me with a little puppy."
  How I Felt: "I was so happy that I couldn’t stop hugging him. At first, I was nervous about taking care of him."
  What I Learned: "Over time, I learned responsibility and how to care for him properly. It became one of the best parts of my life."
- Ask students to write about a memorable day or a special moment from their life. Encourage students to keep it short, about 8-10 sentences.
- Invite a few students to read their write-ups.

WEEK 2 : DAY 4

Activity 2 The Time I Forgot my Homework

35 mins

Learning Objective

At the end of this activity, students will be able to write a narrative based on a personal experience with a clearly defined beginning, middle and end.

- Write the following question on the board: Have you ever made a mistake that taught you something important?
- Tell students that today's activity is focussed on writing a small paragraph on our personal experiences.
- Write the following topic and template on the board:

The Time I Forgot My Homework

What happened: Describe the situation in 2-3 sentences
How I felt: Share emotions during the event in 2-3 sentences
What I learned: Reflect on the lesson or takeaway in 2-3 sentences

- Allow students to discuss their ideas in pairs or small groups.
- Ask students to write about their chosen experience individually.
- Invite a few students to share their write-ups with the class.
- After each story, ask: "What can we learn from this experience?" Encourage classmates to give positive feedback.

WEEK 2 : DAY 5

Assessment 1 Picture Reading

35 mins

Competency

C-3.1 Writes different kinds of letters and essays using appropriate style and registers for different audiences and purposes.

LO

6.E.LO15:
Writes messages, invitations, short paragraphs and letters (formal and informal) and with a sense of audience.

7.E.LO18:
Writes formal letters, personal diary, list, email, SMS, etc.

8.E.LO24:
Writes email, messages, notice, formal letters, descriptions/ narratives, personal diary, report, short personal/ biographical experiences etc.

- Begin the activity by revising with students the format of an informal letter. Spend 5-10 minutes on this.
- Then, ask students to write a letter to their future self. Ask them to reflect on the qualities that are important to them and the kind of person they would like to become. In the letter ask students to share what they would have to do to become that person.

WEEK 2 : DAY 5

Assessment 2 Picture Reading

35 mins

Competency

C-3.1 Writes different kinds of letters and essays using appropriate style and registers for different audiences and purposes.

LO

6.E.LO15:
Writes messages, invitations, short paragraphs and letters (formal and informal) and with a sense of audience.

7.E.LO18:
Writes formal letters, personal diary, list, email, SMS, etc.

8.E.LO24:
Writes email, messages, notice, formal letters, descriptions/ narratives, personal diary, report, short personal/ biographical experiences etc.

- Begin the activity by revising with students the format of a diary entry. You can ask students to share the format to assess their understanding. Spend 5-10 minutes on this.
- Tell students that: Imagine you had a very eventful day at school. Write a diary entry describing the day. Ask them to include the following details:
  - **What happened:** A brief description of the events
  - **How you felt:** Your emotions during the events
  - **What you learned or realised:** Any thoughts or lessons you took away from the day.

Sample Learning Level Tracker

(Teachers are suggested to maintain this tracker at the end of each week)

LEARNING LEVEL TRACKER

About the Traker: Keep a record of weekly assessment results in the traker. As you conduct assessment based on the activities suggested.

Put a tick mark as per the following:
Level 1 (Needs support): Not able to solve problems and having difficulty comprehending the problem
Level 2 (Satisfactory): Solves most of the problems with external support
Level 3 (Excellent): Solves problems independently with minimum external support

Name of the School	**UDISE**
Name of the Teacher	**District**
Assessment Date	

Roll No.	Name of the Student	Week 2								
		6.E.L015			7.E.L018			8.E.L024		
		Level 1	Level 2	Level 3	Level 1	Level 2	Level 3	Level 1	Level 2	Level 3

WEEK 3 : DAY 1

Activity 1 Living Roots Bridge

35 mins

Learning Objective

At the end of this activity, students will be able to write a narrative based on a personal experience with a clearly defined beginning, middle and end.

- Begin the class by asking students if they have ever seen or heard about Meghalaya's Living Roots Bridge.
- Tell the students that:
  - The **roots in the beginning** set the foundation for the bridge.
  - The **intertwining roots in the middle** make the bridge strong.
  - The **end of the bridge** brings you to the other side, concluding the journey.
- Tell students that to make your writing more effective, it needs to have a beginning, a middle and an end like the Living Roots Bridge.
  - The beginning details are the roots that set the foundation for the story.
  - The intertwining roots in the middle are the details and connections that make the story strong.
  - The end of the story help you in concluding it properly.
- Share a simple example of a story using the analogy:
  - **Beginning:** "Last summer, my family visited Meghalaya to see the Living Root Bridges. I was excited but unsure how they were made."
  - **Middle:** "When we arrived, I saw how the villagers patiently guided the roots over many years to create these natural bridges. We walked across one that was over 100 years old, and it felt magical. The lush green forest around us added to the beauty."
  - **End:** "Crossing the bridge made me realise how nature and human effort can create something so unique. It was a day I will never forget."
- Ask students to write their own story inspired by the Living Root Bridge.
- Invite a few students to share their stories aloud.

WEEK 3 : DAY 1

Activity 2 Jumbled Story

35 mins

Learning Objective

At the end of this activity, students will be able to write a narrative based on a personal experience with a clearly defined beginning, middle and end.

- Divide the class into small groups (3–4 students each).
- Example of a Jumbled Story:
  - The bird flew high into the sky, carrying a small twig.
  - A storm had destroyed its nest, and it needed to rebuild.
  - After hours of hard work, the bird's new nest was ready, and it could rest.
  - Once, there was a small bird living in a big tree.
- Correct Order:
  - Beginning: 4
  - Middle: 2, 1
  - End: 3
- Each group is supposed to rearrange the sentences to make the story meaningful and reads their completed story aloud to the class.
- Discuss with students, if the story went forward logically and what made the beginning, middle, and end clear?
- End the activity by discussing the importance of a beginning, middle and end of a story.

WEEK 3 : DAY 2

Activity 1 Types of Nouns

35 mins

Learning Objective

At the end of this activity, students will be able to write a narrative based on a personal experience with a clearly defined beginning, middle and end.

- Briefly explain the four main types of nouns with examples:
  - Common Noun: General name for things (e.g., city, teacher).
  - Proper Noun: Specific names (e.g., Shillong, Priya).
  - Abstract Noun: Ideas, feelings, or qualities (e.g., love, honesty).
  - Collective Noun: A group of things or people (e.g., team, flock).
- Divide the students into groups of 4-5 students. Each group is to discuss and come up with 3 examples of each type of noun.
- Ask each group to make a table as given below to represent the data.

Common Noun	Proper Noun	Abstract Noun	Collective Noun

- Ask all groups to share their answers with the whole class. Each group to pick an example of each of the types of nouns and make a sentence using it.

WEEK 3 : DAY 2

Activity 2 Pronouns

35 mins

Learning Objective

At the end of this activity, students will be able to accurately identify and use different types of pronouns (personal, possessive, reflexive and demonstrative).

- Begin the activity by asking students if they know what pronouns are. If they are not able to recall, briefly explain that pronouns replace nouns to avoid repetition in sentences.
- Talk about the different types of pronouns:
  - Personal Pronouns (he, she, they, etc.)
  - Possessive Pronouns (his, her, ours, theirs, etc.)
  - Reflexive Pronouns (myself, yourself, himself, etc.)
  - Demonstrative Pronouns (this, that, these, those)
- Write the following short paragraph on the board:

Democracy is a system of government that empowers individuals to participate in the decision-making processes that shape their lives. It operates on the principle that power belongs to the people, who express their will through voting and active engagement. In a democracy, citizens elect representatives to advocate for their interests, ensuring that their voices are heard and considered in shaping policies and laws. This system relies on the belief that everyone, regardless of their background or status, has an equal right to contribute. It is the collective responsibility of all citizens to protect and strengthen democratic values, such as justice, equality, and freedom. When they engage in discussions, challenge injustices, and uphold the rights of others, democracy thrives. It is a dynamic and evolving process that depends on the commitment of each person to work together for the common good.

- Instruct students to read the story carefully and come forward to underline a pronoun. After they underline the pronouns, they also have to categorise them into personal, possessive or reflexive pronouns.
- Discuss why certain pronouns were used in specific places and how they replaced nouns in the sentences.

WEEK 3 : DAY 3

Activity 1 Group Story

35 mins

Learning Objective

At the end of this activity, students will be able to accurately identify and use different types of pronouns (personal, possessive, reflexive and demonstrative).

- Begin the activity by reminding students about the importance of a beginning, middle and an end of a story, that they learnt the previous day.
- Divide the class into small groups (4-5 students each).
- Each group collaborates to write a story on a river. You can provide prompts:
  - **Beginning:** Where does your "river" story start? Introduce the setting and characters.
  - **Middle:** What challenges or events does your river face? How do the characters grow or change?
  - **End:** How does the story resolve? What do the characters learn or achieve?
- Ask students to assign roles among the group members: One student writes the Beginning; another writes the middle; another writes the end, and the remaining students edit or add ideas to strengthen the story.
- Groups take turns presenting their stories to the class. Encourage the audience to provide feedback on the story flow, challenges in making the middle engaging etc.

WEEK 3 : DAY 3

Activity 2 Writing a Report

35 mins

Learning Objective

At the end of this activity, students will be able to write an engaging story based on a given framework with a clearly defined beginning, middle and end.

- Revisit the importance of having a clear beginning, middle, and end in a story.
- Divide students into groups and provide each group with a basic story framework.
- Example framework:
  - **Beginning:** A young girl finds a mysterious key in her cupboard.
  - **Middle:** She searches the house and finds a locked box in the kitchen.
  - **End:** The box contains an old letter from her great-grandmother.
- Students will rewrite the story, expanding on each section with additional details, such as:
  - **Beginning:** Describe the setting and her reaction to finding the key.
  - **Middle:** Add emotions, challenges, or discoveries while she searches the house.
  - **End:** Elaborate on the significance of the letter and how it affects her.
- After writing, groups are to read their expanded stories aloud.
- As each shares their stories, discuss with students - what made the expanded story more interesting or detailed? How did adding details improve the flow of the story?

WEEK 3 : DAY 4

Activity 1 Imagine the Future

35 mins

Learning Objective

At the end of this activity, students will be able to accurately identify and use the future tense.

- Ask students to close their eyes and imagine their life 10 years from now. Prompt them with questions:
  - Where will you live?
  - What job will you have?
  - What will your daily routine be like?
  - What new things will you experience?
- Share a few examples to get them thinking:
  - "I will live in a big city and work as a scientist."
  - "I will travel to new countries every year."
- Ask students to write a short paragraph about their imagined future life.
- Encourage them to use sentences starting with "I will..." or "I am going to..." to describe their plans, aspirations, and experiences.
- Invite a few students to read their paragraphs aloud to the class.
- After the sharing, ask students why they were asked to use “I will…” or “I am going to…”?
- Based on students’ answers discuss with them the use and purpose of future tense.

WEEK 3 : DAY 4

Activity 2 Tenses

35 mins

Learning Objective

At the end of this activity, students will be able to accurately distinguish between and use different tenses (past, present and future).

- Briefly explain the three main tenses (past, present, future) with examples:
  - **Past:** "I walked to school."
  - **Present:** "I am walking to school."
  - **Future:** "I will walk to school."
- Write a few common verbs on the board (e.g., eat, play, write, jump) to use during the activity.
- Divide students into teams. Explain that each team will take turns forming sentences in the given tense.
- Call out a verb (e.g., play) and a tense (past, present, or future). The first student in the team line must form a sentence aloud using the given verb and tense (e.g., past tense: "I played football yesterday"). After their turn, they move to the back of the line, and the next student steps up.
- If a student struggles, help them understand the concept again before moving forward.
- In the end, ask students to write 2 sentences on each of the form of tenses using the verbs written on the board.

WEEK 3 : DAY 5

Assessment 1

40 mins

Competency

C-2.1 Uses writing strategies, such as sequencing ideas, identifying headings/sub-headings and forming clear beginning, ending, and paragraphs.

LO

6.E.LO14: Writes coherently with focus on appropriate beginning, middle and end in English / Braille.

8.E.LO22: Writes short paragraphs coherently in English/ Braille with a proper beginning, middle and end with appropriate punctuation marks.

1. Take 5 – 10 minutes to revise about how a beginning, middle and end shape the story we write in an effective manner.
2. Ask students: "What would a typical day in your future look like?"
3. Encourage them to think about morning routines, daily activities, and evening plans.
4. Instruct students to write a detailed description of one day in their future life.
5. Ask students to divide their writing into three parts:
   a. **Morning:** What will you do when you wake up?
   b. **Afternoon:** What will you do during the day?
   c. **Evening:** How will you spend your evening?
6. Encourage them to add details to make their descriptions imaginative.
7. If time allows, ask a few students to share their "future day" descriptions with the class.

WEEK 3 : DAY 5

Assessment 2

35 mins

Competency

C-5.1 Uses appropriate grammar and structure in their writing.

LO

6.E.LO12: Writes grammatically correct sentences for a variety of situations, using noun, pronoun, verb, adverb, determiners, etc.

7.E.LO16: Uses appropriate grammatical forms in communication (e.g. Noun, pronoun, verb, determiners, time and tense, passivation, adjective, adverb, etc)

8.E.LO7: Participates in grammar games and kinaesthetic activities for language learning.

- Take 5 – 10 minutes to revise about the use and purpose of future tenses.
- Write the following fill in the blank sentences on the board and ask students to complete them in their notebooks, with appropriate future tenses:

1. He _____ (start) his new job next Monday.
2. By the end of this year, we _____ (move) to a new house.
3. She _____ (attend) a music concert with her friends tomorrow.
4. This time next week, they _____ (fly) to Paris for their vacation.
5. I _____ (not watch) TV tonight because I have homework.
6. _____ she _____ (meet) us at the library later?
7. The train _____ (leave) at 6:30 PM, so don't be late.
8. We _____ (complete) the project before the deadline.
9. He _____ (buy) a new car next month.
10. _____ you _____ (help) me with my homework tomorrow?
11. I _____ (visit) my grandparents next weekend.
12. By this time tomorrow, she _____ (finish) her project.
13. They _____ (play) football in the park when we arrive.
14. We _____ (not attend) the meeting because we have a holiday.
15. _____ you _____ (join) us for dinner tonight?

CM IMPACT

Meghalaya Class Readiness Programme

ENGLISH

APPENDIX

Main Menu

Pre-requisite Competency and Learning Outcomes essential for Grade-level learning

The table below shows the mapped pre-requisite (from previous grades) learning outcomes that are essential for students to grasp concepts at the current grade-level. These learning outcomes have been taken from the Learning Outcomes developed by NCERT in 2017. Corresponding to some pre-requisite LOs you may see some concepts written in the Grade-level LO column. While the NCERT document does not have certain LOs progressing from the pre-requisite to the grade-level, these concepts are foundational for learning of the student and hence have been included in the activity pack.

Middle Stage (MS)	Pre-requisite LO	Grade-level
C-1.3 Identifies and appreciates the main idea in the various texts	**6.E.LO5** Reads a variety of texts in English / Braille and identifies main ideas, characters, sequence of ideas and events and relates with his/her personal experiences	**9.E.LO7** Reads with comprehension the given text / materials employing strategies like skimming, scanning, predicting, previewing, reviewing, inferring and summarising
	6.E.LO7 Responds to a variety of questions on familiar and unfamiliar texts verbally and in writing	
	7.E.LO9 Identifies details, characters, main idea and sequence of ideas and events in textual / non-textual material	
	8.E.LO14 Identifies details, characters, main idea and sequence of ideas and events while reading	

C-3.1 Writes different kinds of letters and essays using appropriate style and registers for different audiences and purposes	**6.E.LO15** Writes messages, invitations, short paragraphs and letters (formal and informal) and with a sense of audience	**9.E.LO10** Writes letters both formal and informal, invitations, advertisements, notices, slogans, messages and emails
	7.E.LO18 Writes formal letters, personal diary, list, email, SMS, etc.	
	8.E.LO24 Writes email, messages, notice, formal letters, descriptions/ narratives, personal diary, report, short personal/ biographical experiences etc.	
C-2.1 Uses writing strategies, such as sequencing ideas, identifying headings/ sub-headings and forming clear beginning, ending, and paragraphs	**6.E.LO14** Writes coherently with focus on appropriate beginning, middle and end in English / Braille	**9.E.LO24** Writes short stories and composes poems on the given theme or on their own
	8.E.LO22 Writes short paragraphs coherently in English/Braille with a proper beginning, middle and end with appropriate punctuation marks	
C-5.1 Uses appropriate grammar and structure in their writing	**6.E.LO12** Writes grammatically correct sentences for a variety of situations, using noun, pronoun, verb, adverb, determiners, etc.	**9.E.LO18** Uses grammar items in context, such as, reporting verbs, passive and tense, time and tense, subject-verb agreement, etc.
	8.E.LO7 Participates in grammar games and kinaesthetic activities for language learning	

Main Menu

CM IMPACT
Meghalaya Class Readiness Programme

CHIEF MINISTER'S INITIATIVE TO MAXIMIZE PASS ACHIEVEMENT AND CLASSROOM TRIUMPH

MATHEMATICS

Main Menu

WEEK 1 : DAY 1

Activity 1 Prime Factorisation Relay

35 mins

Learning Objective

At the end of this activity, students will be able to solve problems on daily life situations involving addition and subtraction of fractions/ decimals.

- Review how to add and subtract fractions and decimals by inviting students to come to the board and solve few examples.
  - **Addition/Subtraction:** Find a common denominator for fractions or align decimal places for decimals.
- Now, upon discussion with the whole class solve some real-life applications on the board such as:

  Problem 1: A recipe for pancakes requires requires $\frac{3}{4}$ cup of milk, but the chef only has $\frac{1}{2}$ cup left. How much more milk does the chef need to buy?
  Follow-up: If the recipe calls for $\frac{2}{3}$ cup of sugar, but the chef only has $\frac{1}{4}$ cup left, how much more sugar does the chef need?
  Problem 2: A customer buys items worth ₹1250.50, ₹760.30, and ₹395.75. How much does the customer need to pay in total?
  Follow-up: If the customer gives ₹2500.00, how much change will they receive?
- Give more such questions for students to solve individually.

WEEK 1 : DAY 1

Activity 2 Exploring Properties of Rational Numbers

35 mins

Learning Objective

At the end of this activity, students will be able to use algorithms to multiply and divide fractions/decimals.

- Review how to multiply and divide fractions and decimals by inviting students to come to the board and solve few examples.
  - **Multiplication:** Multiply the numerators and denominators for fractions; multiply decimals like whole numbers, then adjust the decimal point.
  - **Division:** Multiply by the reciprocal of the divisor for fractions; move the decimal point in division of decimals.
- Now, with whole class solve some real-life applications on the board such as:
  - **Problem 1:** A baker needs $\frac{3}{4}$ of a bag of flour for one batch of cookies. How much flour will be needed for 5 batches of cookies?
  - **Follow-up:** If each batch requires $\frac{1}{2}$ cup of sugar, how much sugar is required for 3 batches?
  - **Problem 2:** A recipe calls for $\frac{2}{3}$ cup of butter. If the baker has $\frac{3}{4}$ of a cup of butter available, how many full recipes can the baker make with the available butter?
- Give more such questions for students to solve individually.

WEEK 1 : DAY 2

Activity 1 Visualising Real Numbers on a Number Line

35 mins

Learning Objective

At the end of this activity, students will be able to understand numbers, such as whole numbers, fractions, integers, rational numbers, and real numbers, and their properties, and visualises them on the number line.

- Draw a Number line on the board marking some examples like 0, -1, 2, and 3.5.
- Begin by explaining what a number line is and how it represents all real numbers (Natural Numbers, Whole Numbers, Integers, Fractions, Real Numbers and Irrational numbers).
- Mention that irrational numbers (e.g., √2, π) are also represented on the number line but require approximations.

- Next, divide students into small groups of 4–5.
- Give each group 10 sets of numbers (integers, fractions, decimals and irrational numbers) and ask them to plot them on the number line.
- Provide guidance as groups work, ensuring proper placement of numbers.

- Ask each group to present one tricky number they placed and explain their reasoning.
- Clarify common misconceptions (e.g., incorrect placement of decimals or irrational numbers).
- Conclude, by summarising key points about the number line.

WEEK 1 : DAY 2

Activity 2 Exploring Properties of Rational Numbers

35 mins

Learning Objective

At the end of this activity, students will be able to generalise properties of addition, subtraction, multiplication and division of rational numbers through patterns.

- Write the four properties (closure, commutative, associative, distributive) on the board.
- Provide brief explanations with examples for each property and operation.
- Now, within the same groups created during the previous activity, randomly assign one property to each group.
- Ask groups to:
  - Identify whether their assigned property holds for whole numbers, natural numbers, integers, and rational numbers across all operations.
  - Create their own examples to demonstrate the assigned property.
- Conclude by summarising the properties of rational numbers on the board with the students' input, using the table format as shown.

Closure	Addition	Subtraction	Multiplication	Division
Rational Numbers	Yes	Yes	Yes	Yes
Integers				
Whole Numbers				
Natural Numbers				

Commutative	Addition	Subtraction	Multiplication	Division
Rational Numbers				
Integers				
Whole Numbers				
Natural Numbers				

Associative	Addition	Subtraction	Multiplication	Division
Rational Numbers				
Integers				
Whole Numbers				
Natural Numbers				

Distributive	Addition	Subtraction	Multiplication	Division
Rational Numbers				
Integers				
Whole Numbers				
Natural Numbers				

WEEK 1 : DAY 3

Activity 1 Prime Factorisation Relay

35 mins

Learning Objective

At the end of this activity, students will be able to recognise and appreciates (through patterns) the broad classification of numbers as even, odd, prime, co-prime, etc.

- Start with a brief review of prime numbers and demonstrate prime factorisation using an example (e.g., 24 = 2 × 2 × 2 × 3).
- Emphasise the significance of breaking down a number into its prime factors.
- Organise students into groups of four and arrange them in a line.
- Assign a number to the first member of each group.
- The first group member performs the prime factorisation step-by-step and passes the work to the next member, who verifies the factorisation and works on a new number provided by you.
- Students must approach you after verification to collect a new number and continue the relay.
- The group that completes all tasks first is declared the winner.

You need to have a collection of numbers to share with the students, based on your class strength.

WEEK 1 : DAY 3

Activity 2 LCM and HCF Relay

35 mins

Learning Objective

At the end of this activity, students will be able to apply HCF or LCM in a particular situation.

- Recap the concepts of LCM and HCF with examples and quick oral questions (e.g., "What is the LCM of 4 and 6?" "What is the HCF of 15 and 20?").
- Now, within the same groups created during the previous activity, play a similar relay game for HCF and LCM.
- Assign a question (e.g., What is the LCM of 16 and 24?) to the first member of each group.
- The first group member solves the problem and passes the work to the next member, who verifies it and works on a new problem provided by you.
- Students must approach you after verification to collect a new problem and continue the relay.
- The group that completes all tasks first is declared the winner.

You need to have a collection of problems to share with the students, based on your class strength.

WEEK 1 : DAY 4

Activity 1 Application-Based Problems on LCM and HCF

35 mins

Learning Objective

At the end of this activity, students will be able to apply HCF or LCM in a particular situation.

- Divide students into 5 groups.
- Each group will solve 1 of the following problems.
  - **Problem 1:** Two friends, Sarah and Tom, love to cycle. Sarah cycles around a park every 12 minutes, while Tom cycles every 15 minutes. If they start cycling at the same time, how long will it take before they meet again at the starting point?
  - **Problem 2:** A teacher wants to divide 60 pencils and 48 pens among her students in such a way that each student gets the same number of pencils and pens, with no leftover. What is the maximum number of students she can divide the pencils and pens between?
  - **Problem 3:** A bus leaves a station every 18 minutes, and another bus leaves every 24 minutes. If both buses start at the same time, how long will it be before they both leave the station at the same time again?
  - **Problem 4:** A company has 84 red balloons and 108 blue balloons. They want to arrange the balloons in bunches, with the same number of red and blue balloons in each bunch, and no balloons left over. What is the maximum number of bunches they can make?
  - **Problem 5:** A music band has to rehearse every 10 days, and the choir practices every 15 days. If they want to practice together, when is the next day both will meet for a joint practice?
- Ask each group presents their solution explaining the steps they took to find the LCM or HCF for each problem.
- Encourage students to show their work on the board and highlight key steps like:
  - Prime factorisation for LCM and HCF
  - Use of the division method or listing multiples/divisors

WEEK 1 : DAY 4

Activity 2 Application-Based Problems on LCM and HCF

35 mins

Learning Objective

At the end of this activity, students will be able to apply HCF or LCM in a particular situation.

- Re-shuffle the groups to form new sets of 5 groups.
- Each group will solve 1 of the following problems.
  - **Problem 1:** Two friends, Alice and Bob, are practicing their multiplication tables. Alice's number is a multiple of 12 and 18, while Bob's number is the highest factor of both 12 and 18. What are Alice's number and Bob's number?
  - **Problem 2:** There are two gardeners, Sarah and Liam, who each have garden plots. Sarah plants flowers in rows of 8, while Liam plants in rows of 12. They want to plant their flowers in the same number of rows with no leftover space. What is the smallest number of rows they can both use?
  - **Problem 3:** A teacher needs to divide 36 pencils and 54 pens among students in such a way that each student gets the same number of pencils and pens, and there are no leftovers. What is the maximum number of students she can divide the pencils and pens between?
  - **Problem 4:** In a race, two runners start at the same time. The first runner completes a lap every 9 minutes, and the second runner completes a lap every 12 minutes. How many minutes will it take for both runners to meet again at the starting point?
  - **Problem 5:** Three friends are cutting pieces of fabric for a project. They have three pieces of fabric with lengths of 18 meters, 24 meters, and 30 meters. They want to cut the fabric into pieces of equal length, with no fabric left over. What is the largest length each piece can be?
- Ask each group presents their solution explaining the steps they took to find the LCM or HCF for each problem.
- Encourage students to show their work on the board and highlight key steps.

WEEK 1 : DAY 5

Recapitulation

20 mins

- Begin Day 5 by revisiting the topics and concepts discussed over the past four days.
- Conduct CFU (Check For Understanding) quizzes to assess student comprehension and identify any learning gaps.
- Collaboratively summarise the week's lessons by writing key points or formulas on the board with input from the students.

Worksheet

50 mins

Write the following questions on the Board and ask students to solve them in their notebooks:

1. A customer buys items worth ₹750.25, ₹1250.50, and ₹395.75. How much does the customer need to pay in total?
   a) ₹2396.50
   b) ₹2396.75
   c) ₹2496.50
   d) ₹2596.50
2. If the recipe requires $\frac{3}{4}$ cup of sugar but you only have $\frac{1}{3}$ cup, how much more sugar is needed?
   a) $\frac{1}{2}$ cup
   b) $\frac{3}{4}$ cups
   c) $\frac{2}{4}$ cups
   d) $\frac{1}{3}$ cup
3. Which property is demonstrated by the equation $a + b = b + a$?
   a) Associative Property
   b) Distributive Property
   c) Commutative Property
   d) Closure Property

4. A baker has $\frac{3}{4}$ of a cup of butter. If each recipe requires $\frac{1}{4}$ cup of butter, how many full recipes can be made?
   a) 2
   b) 3
   c) 4
   d) 1
5. Perform prime factorisation of 56 and write it as a product of its prime factors.
6. A shopkeeper sells 24 pens and 36 pencils, and wants to pack them into boxes with equal numbers of pens and pencils without leftovers. What is the maximum number of boxes that can be made, and how many pens and pencils will each box have?
7. Draw a number line and mark the following numbers: $-2, -\frac{3}{2}, 0, \frac{3}{4}, 2.5$
8. Two buses leave the station at the same time. The first bus repeats every 12 minutes, and the second every 18 minutes. After how long will both buses meet at the station again? Solve using the LCM method.
9. A triangular garden has a base of 12 m and a height of 8 m. Find the area of the garden. If the garden is expanded by increasing both the base and height by 50%, find the new area.
10. Explain with examples how the associative property holds for addition but not for subtraction in rational numbers.

Sample Learning Level Tracker

(Teachers are suggested to maintain this tracker at the end of each week)

LEARNING LEVEL TRACKER

About the Traker: Keep a record of weekly assessment results in the traker. As you conduct assessment based on the activities suggested.

Put a tick mark as per the following:
Level 1 (Needs support): Not able to solve problems and having difficulty comprehending the problem
Level 2 (Satisfactory): Solves most of the problems with external support
Level 3 (Excellent): Solves problems independently with minimum external support

Name of the School	**UDISE**
Name of the Teacher	**District**
Assessment Date	

Roll No.	Name of the Student	Week 1														
		6.M. L06			7.M. L03			8.M. L01			6.M. L02			6.M. L03		
		Level 1	Level 2	Level 3	Level 1	Level 2	Level 3	Level 1	Level 2	Level 3	Level 1	Level 2	Level 3	Level 1	Level 2	Level 3

Main Menu

WEEK 2 : DAY 1

Activity 1 Polynomial Operations

35 mins

Learning Objective

At the end of this activity, students will be able to add/subtract algebraic expressions and multiply algebraic expressions.

- Start with a brief review of polynomial terms, degree, and types of polynomials (monomials, binomials, trinomials).
- Give examples on the blackboard and ask students to identify the degree and type.
- Solve a few addition, subtraction, and multiplication problems involving polynomials on the blackboard, encouraging student participation.
- Example:
  - $(3x^2+2x+5) + (4x^2-3x+1)$
  - $(5x^3-2x^2+6) - (3x^3+4x^2-2)$
  - $(x+2)\,(x-3)$
  - $(3x^2-4x)\,(2x+5)$
  - $\frac{x^2+5x+6}{x+2}$ Use polynomial long division to divide the polynomials and express the quotient and remainder (if any)
- If time permits, give more such questions for students to solve individually.

WEEK 2 : DAY 1

Activity 2 Exploring Algebraic Identities

35 mins

Learning Objective

At the end of this activity, students will be able to add/subtract algebraic expressions and multiply algebraic expressions.

- Write (10+2)2 on the board and expand it both ways:
  - Using direct calculation: (10+2)2 = 122 = 144
  - Using expansion: (10+2)2 = (10 + 2) (10 + 2) = 10.10 + 2.10.2 + 22= 100 + 40 + 4 =144
- Explain that the second method is an example of applying an algebraic identity.
- Introduce the Key Identities:
  - $(a + b)2 = a2 + 2ab + b2$
  - $(a - b)2 = a2 - 2ab + b2$
  - $(a + b)\ (a-b) = a2 - b2$
- Call random students to come on the board and show the derivation of the above identities.
- Next, ask students to expand and simplify each expression to identify the underlying identity:
  - $(x+3)2$
  - $(y-5)2$
  - $(5m + 2n)\ (5m - 2n)$
- If time permits, give more such questions for students to solve individually.

WEEK 2 : DAY 2

Activity 1 Building Bridges with Algebraic Identities

35 mins

Learning Objective

At the end of this activity, students will be able to use various algebraic identities in solving problems of daily life.

- Show a real-world example:
  "A rectangular garden has length (x + 5) meters and width (x − 5) meters. Its area can be simplified using (a + b) (a - b).” Give a value to x and find the area of the garden.
- Next, divide the class into groups of 4-5 students. Each group solves real-world scenarios using algebraic identities.

Scenario 1:
A shopkeeper calculates the price of a discounted item using (p−5)2, where p is the original price.
- Write the expanded expression for the new price.
- If p = 20, find the discounted price.

Scenario 2:
A company wants to fence a square park of side (a + 4) meters.
- Write an expression for the total cost of fencing if the rate is ₹15 per meter.
- Simplify the cost using an algebraic identity.
- If a = 6, calculate the cost.

Scenario 3:
The difference between the squares of two numbers is 84. The numbers are (p + 7) and (p − 7). Use an identity to find p.

Scenario 4:
A factory has a plot with sides (x+2) and (x−2). They want to add a parking area of x2−4 square meters. Confirm if the parking area matches the plot's difference in square area using an identity.

- Ask each group presents their solution to their scenario and discuss the steps and clarify any misunderstandings about using the identities in real-life contexts.

WEEK 2 : DAY 2

Activity 2 Practice Algebraic Expressions and Identities

35 mins

Learning Objective

At the end of this activity, students will be able to use various algebraic identities in solving problems of daily life.

- Write the following questions on the Board (or dictate) and ask students to solve them in their notebooks:
  - Obtain the volume of rectangular boxes with the following length, breadth and height respectively.
    i. $5a, 3a^2, 7a^4$
    ii. $2p, 4q, 8r$
  - Simplify $(a + b)(2a - 3b + c) - (2a - 3b)c$
  - A trader's profit from selling $(x+2)$ items is calculated as $(x+2)(x-2)$. Use the identity $(a+b)(a-b)$ to simplify the expression for profit. Also, find the profit when $x=10$.
  - The difference between the squares of two distances travelled by a bus is 121 km. If the distances are $(y+11)$ km and $(y-11)$ km, use an identity to find y.
  - A square floor of side $(a+5)$ meters needs tiling. Write an expression for the total area to be tiled. If the cost of tiling is ₹50 per square meter, find the total cost for $a=8$.
- Allow 15–20 minutes for students to solve these problems individually, then randomly select different students to present their solutions to the class.
- Address and clarify any misconceptions, if necessary.

WEEK 2 : DAY 3

Activity 1 Linear Equations in One Variable

35 mins

Learning Objective

At the end of this activity, students will be able to represent daily life situations in the form of a simple equation and solves it.

- Briefly review the concept of linear equations in one variable (e.g., $ax + b = c$) and the steps to solve them on the board.
- Example: Solve $2x+3=7$ step by step. You may call students on the board to solve a few examples.
- Next, write a few sets of Questions on the board with increasing complexity for students to solve in their notebooks.
  - Basic equations: $3x = 12$, $x + 5 = 10$
  - Equations with fractions: $2x/3 = 6$, $x - 5/2 = 4$
  - Multi-step equations: $2x + 5 = 15$, $4x - 3 = 9$
  - complex equations: $2(x-3) = 8$, $5x + 7 = 2x + 19$

- Allow 15–20 minutes for students to solve these problems individually, then randomly select different students to present their solutions to the class.
- Address and clarify any misconceptions, if necessary.

WEEK 2 : DAY 3

Activity 2 Equation Relay

35 mins

Learning Objective

At the end of this activity, students will be able to represent daily life situations in the form of a simple equation and solves it.

- Divide the class into 2 groups.
- Prepare 20 equation cards (Equations written on a slip) (10 for each group). Examples of equations:
  - $3x+4=19$
  - $2(x+3)=12$
  - $5x-2=3x+10$

- Keep the equation card on the Teachers Table.
- Instruct Teams to take turns to draw an equation card and solving the problem within a time limit (e.g., 2 minutes).
- Ask them to get the solution verified before the next member of the team to draw the next card.
- The group that solves all equations first is declared the winner.

WEEK 2 : DAY 4

Activity 1 Story to Equation

35 mins

Learning Objective

At the end of this activity, students will be able to solve puzzles and daily life problems using variables.

- Explain how real-world problems can be represented using equations.
  Example: "A taxi charges a fixed rate of ₹50 plus ₹10 per kilometer. If the total fare is ₹150, how many kilometers did the taxi travel?"
  Equation: $50+10x=150$
- Divide students into groups and give each group 3–4 story cards with different scenarios.
- Ask each group forms equations based on the given stories.

Sample Scenarios:

- A watermelon weighs 2 kg less than three times the weight of a pineapple. If the watermelon weighs 10 kg, what is the weight of the pineapple?
- A movie ticket costs ₹150, and snacks cost ₹50. If the total cost is ₹350, how many movie tickets were bought?

- Allow 15–20 minutes for students to solve these problems then ask groups to present their equations and explain their reasoning.

WEEK 2 : DAY 4

Activity 2 Practice Solving Linear Equations

35 mins

Learning Objective

At the end of this activity, students will be able to solve puzzles and daily life problems using variables.

- Write the following questions on the Board (or dictate) and ask students to solve them in their notebooks:
    - Riya is 5 years older than her brother. The sum of their ages is 25 years. Find their individual ages.
    - A shopkeeper sells pens at ₹15 each and notebooks at ₹25 each. If a customer buys 3 pens and some notebooks for ₹115, how many notebooks did they buy?
    - A plumber charges a fixed service fee of ₹200 plus ₹50 per hour of work. If the total charge for a job is ₹450, how many hours did the plumber work?
    - A train covers a distance of 120 km in xxx hours at a constant speed of 40 km/h. How much time does the train take to cover the distance?
    - Ramesh has twice as much money as Suresh. If together they have ₹600, how much money does each of them have?
- Allow 15–20 minutes for students to solve these problems individually, then randomly select different students to present their solutions to the class.
- Address and clarify any misconceptions, if necessary.

WEEK 2 : DAY 5

Recapitulation

20 mins

- Begin Day 5 by revisiting the topics and concepts discussed over the past four days.
- Conduct CFU (Check For Understanding) quizzes to assess student comprehension and identify any learning gaps.
- Collaboratively summarise the week's lessons by writing key points or formulas on the board with input from the students.

Worksheet

50 mins

Write the following questions on the Board and ask students to solve them in their notebooks:

1. Simplify $(x+5)\ (x-5)$.
   a) $x2+25$
   b) $x2-25$
   c) $x2+10x-25$
   d) $x2-10x+25$
2. Which algebraic identity is used to expand $(a+b)2$?
   a) $a2+b2$
   b) $a2-b2$
   c) $a2+2ab+b2$
   d) $a2-2ab+b2$
3. A linear equation is given as $3x+5=20$. What is the value of x?
   a) 15
   b) 5
   c) 10
   d) 20

4. If a square park has a side of $(x+4)$ meters, what is the simplified expression for its area?
   a) $x2+4$
   b) $x2+8x+16$
   c) $x2+16$
   d) $x2+4x+8$
5. Expand the expression $(3x+2)2$ using the appropriate algebraic identity.
6. Solve the linear equation: $2(x+3) = 18$.
7. A rectangle has a length of $(2x+5)$ meters and a width of $(x−3)$ meters. Write an expression for its area and simplify it.
8. The sum of two numbers is 30, and their difference is 10. Form a pair of linear equations based on this information and solve them to find the numbers.
9. A trader sells notebooks at ₹25 each and pens at ₹15 each. If the total sales amount to ₹350 and he sold 10 notebooks, how many pens were sold? Form and solve the linear equation.
10. The difference between the squares of two numbers is 84. If the numbers are $(p+7)$ and $(p−7)$, use an algebraic identity to find p.

Sample Learning Level Tracker

(Teachers are suggested to maintain this tracker at the end of each week)

LEARNING LEVEL TRACKER

About the Traker: Keep a record of weekly assessment results in the traker. As you conduct assessment based on the activities suggested.

Put a tick mark as per the following:
Level 1 (Needs support): Not able to solve problems and having difficulty comprehending the problem
Level 2 (Satisfactory): Solves most of the problems with external support
Level 3 (Excellent): Solves problems independently with minimum external support

Name of the School	**UDISE**
Name of the Teacher	**District**
Assessment Date	

Roll No.	Name of the Student	Week 2											
		7.M. L07			8.M.L07			8.M. L08			7.M. L06		
		Level 1	Level 2	Level 3	Level 1	Level 2	Level 3	Level 1	Level 2	Level 3	Level 1	Level 2	Level 3

Main Menu

WEEK 3 : DAY 1

Activity 1 Angles and Parallel Lines

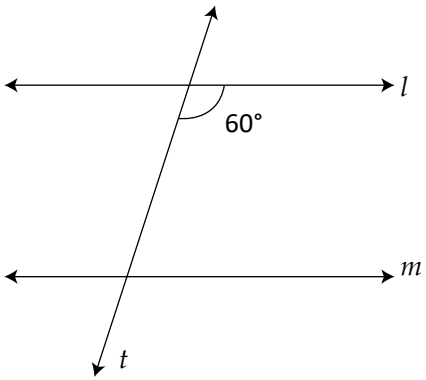
35 mins

Learning Objective

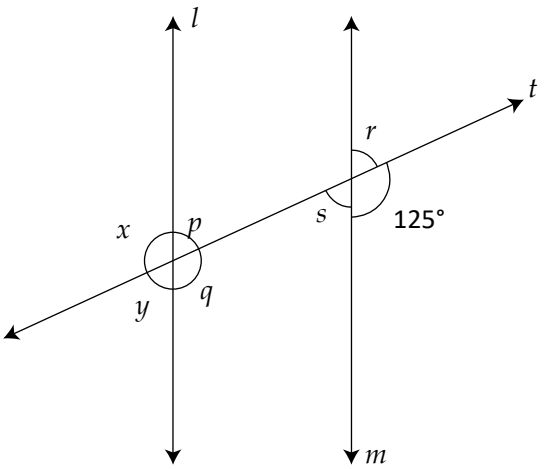
At the end of this activity, students will be able to classify pairs of angles based on their properties as linear, supplementary, complementary, adjacent and vertically opposite and find value of the one when the other is given.

- Recap what are parallel lines, transversal, angles made by a transversal and the key properties:
  - Corresponding angles are equal.
  - Alternate interior angles are equal.
  - Co-interior (same-side interior) angles are supplementary.
  - Vertically opposite angles are equal.

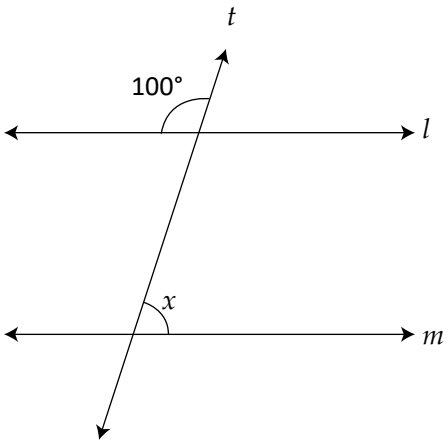
- Provide a quick example:
  - "If one angle is 60°, find all other angles
  - formed by parallel lines and a transversal."



- Give 5-6 more exercises to practice. Example:
  - In the adjoining figure $l||m$, find the unknown angles:



  - Find the value of x in each of the following figures if $l \,||\, m$.



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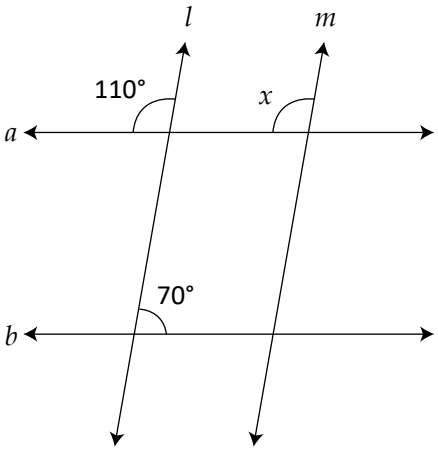

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Main Menu

WEEK 3 : DAY 1

Activity 2 Congruence and similarity in triangles

35 mins

Learning Objective

At the end of this activity, students will be able to classify pairs of angles based on their properties as linear, supplementary, complementary, adjacent and vertically opposite and find value of the one when the other is given.

- Recap the criteria for congruence (SSS, SAS, ASA, RHS) and similarity (AA, SSS, SAS).
  - Highlight the differences between congruence and similarity.
- Example: Compare two triangles with side lengths 3,4,53, 4, 5 and 6,8,106, 8, 10. Are they congruent or similar?
- Organise the class into small groups of 4-5 students.
- Provide each group with three sets of dimensions to draw triangles.
- Instruct each group to draw their triangles and analyse them for congruence and similarity.
- Allocate 15 minutes for the groups to complete the task and then present their findings to the class.

WEEK 3 : DAY 2

Activity 1 Quadrilateral Quest

35 mins

Learning Objective

At the end of this activity, students will be able to verify properties of Quadrilaterals and establish the relationship between them through reasoning.

- Briefly review:
  - Types of quadrilaterals: Trapezium, Parallelogram, square, rectangle, rhombus, kite, etc.
  - Ask simple warm-up questions, e.g.:
  - "What defines a parallelogram?"
  - "How is a square different from a rhombus?"
  - Divide the class into groups of 4-5 students.
- Assign each group one or more types of quadrilaterals (e.g., squares, rectangles, kites).
- Instruct each group to
  - Draw the assigned quadrilateral and measure their angles, sides, and diagonals.
  - List the properties they observe (e.g., "Opposite sides of a rectangle are equal and parallel").
- Conclude by summarising the types and their properties on the board with the students' input, using the table format as shown.

Quadrilateral	Properties
Parallelogram: A quadrilateral with each pair of opposite sides parallel.	(1) Opposite sides are equal. (2) Opposite angles are equal. (3) Diagonals bisect one another
Rhombus:	
Rectangle:	
Square:	
Kite:	

WEEK 3 : DAY 2

Activity 2 Design a Park: Explore Area and Perimeter of Quadrilaterals

35 mins

Learning Objective

At the end of this activity, students will be able to find the area of a polygon.

- Briefly review:
  - **Perimeter:** Sum of all sides of the quadrilateral.
  - **Area:** Specific formulas for rectangles, squares, parallelograms, rhombuses, and trapeziums.
  - Finding area of polygons by splitting them into quadrilaterals and triangles.
- Now, within the same groups created during the previous activity, provide a graph paper and these instructions:
- **Step 1:** Draw a park layout consisting of at least three quadrilaterals (e.g., a rectangular playground, a triangular garden resembling half of a parallelogram, and a trapezium-shaped pond).
- **Step 2:** Assign dimensions to each section (e.g., Rectangle: 10 m × 5 m, Trapezium: parallel sides 8 m and 5 m, height 4 m.)
- Instruct students to calculate the:
  - Perimeter of each section for fencing.
  - Area of each section to find the total usable space in the park.
- Allocate 20 minutes for the groups to complete the task and then present how they calculated the area and perimeter for each section and the total area and fencing required

Ask students to bring compass, scissors and glue for the next class.

WEEK 3 : DAY 3

Activity 1 Design 3D shapes

35 mins

Learning Objective

At the end of this activity, students will be able to find surface area and volume of cuboidal and cylindrical object.

The students require compass, scissors and glues apart from their usual stationery.

- Divide the class into groups of 4-5 students.
- Provide graph papers or A4 sheets to each group and ask them to prepare cubes, cuboids and cylinders.
- Assist them in understanding how to construct these shapes using the graph paper.
- Once the students have completed their models, guide them to derive the formulas for surface area and volume.
  Cube
  Surface Area = 6a2, Volume = a3
  Cuboid:
  Surface Area = 2(lb+bh+hl)
  Cylinder:
  Surface Area = 2πr(h+r), Volume = πr2h

- Encourage students to reason and logically arrive at the respective formulas.

WEEK 3 : DAY 3

Activity 2 Word Problems on Surface Area and Volume

35 mins

Learning Objective

At the end of this activity, students will be able to find surface area and volume of cuboidal and cylindrical object.

- Solve one- or two-word problem on the board taking inputs from the whole class.
- Example: A fish tank is in the form of a cuboid with dimensions 60 cm×30 cm×40 cm
  - Calculate the volume of the tank.
  - If the tank is filled with water, what is the total area of glass in contact with the water (surface area excluding the open top)?

- Next, write the following questions on the Board (or dictate) and ask students to solve them in their notebooks:
  - A wooden box with measure 80 cm × 48 cm × 24 cm is to be covered with a cloth. How many metres of cloth of width 96 cm is required to cover 100 such boxes?
  - Find the side of a cube whose surface area is 150 cm2.
  - A road roller takes 750 complete revolutions to move once over to level a road. Find the area of the road if the diameter of a road roller is 84 cm and length is 1 m.
  - Find the height of a cuboid whose base area is 180 cm2 and volume is 900 cm3?
  - Find the height of the cylinder whose volume is 1.54 m3 and diameter of the base is 140 cm?

- Allocate 3-4 minutes time to solve each question and consolidate each time by discussing how to approach the problem.

WEEK 3 : DAY 4

Activity 1 Quiz Time

35 mins

Learning Objective

At the end of this activity, students will be able to find surface area and volume of cuboidal and cylindrical object.

- Split the class into two teams, A and B, and organise a quiz session.
- Prepare 6-8 questions for the quiz.
- Example questions:
  - Which is more crucial in packaging design?
  - How do changes in dimensions impact surface area and volume differently?
  - You are designing a cylindrical water tank with a capacity of 500 liters. What dimensions would minimise the surface area?
- If the length of a cuboid is doubled, how do the surface area and volume change?
- Begin with Team A and ask the first question. Allow 2 minutes for an answer. If they are unable to answer, pass the question to Team B.
- The team with the most correct answers wins.

WEEK 3 : DAY 4

Activity 2 Introduction to Graphs

35 mins

Learning Objective

At the end of this activity, students will be able to draw and interpret bar charts and pie charts.

- **Explain Key Concepts:**
  - The horizontal axis is the x-axis, and the vertical axis is the y-axis.
  - The point where the axes intersect is the origin (0,0).
  - Points are plotted as ordered pairs (x,y).
  - Meaning of Bar, Pie Chart, Line and linear graphs, relation between dependent and independent variables.
- Show an example: Draw a graph on the board and plot the points (2,3), (−1,4), (0,−2), etc on the graph.
- Take the actual attendance of the class for the past week and write it on the board for everyone to record.
  Example Attendance Log:

Day	Students Present
Day 1	30
Day 2	32
Day 3	28
Day 4	31
Day 5	29

  Ask students to draw a Bar graph of the given data.
- Discuss with the whole class and try to analyse the trend.
- Next, ask each student to prepare a table marking their own attendance for the last 3 weeks. Example,
  Ask them to plot a line graph of their own attendance and try to analyse the trend.

Week	Days Present
Week 1	5
Week 2	3
Week 3	4

WEEK 3 : DAY 5

Recapitulation

20 mins

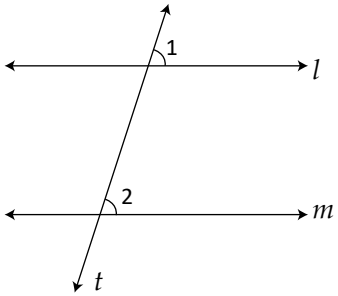
- Begin Day 5 by revisiting the topics and concepts discussed over the past four days.
- Conduct CFU (Check For Understanding) quizzes to assess student comprehension and identify any learning gaps.
- Collaboratively summarise the week's lessons by writing key points or formulas on the board with input from the students.

Worksheet

50 mins

Write the following questions on the Board and ask students to solve them in their notebooks:

1. In the figure below, $l \| m$, and $\angle 1 = 60°$. What is the measure of $\angle 2$?
   a) 60°
   b) 120°
   c) 90°
   d) 30°



2. Which criterion proves that two triangles are congruent if two angles and the included side are equal?
   a) SSS
   b) ASA
   c) SAS
   d) RHS

3. The surface area of a cube is 150 cm^2. What is the length of one side?
   a) 5 cm
   b) 6 cm
   c) 7 cm
   d) 4 cm
4. A cylindrical water tank has a base radius of 7 m and a height of 10 m. What is its volume?
   a) 220 m3
   b) 440 m3
   c) 1540 m3
   d) 770 m3
5. A rectangle has a perimeter of 48 m. If its length is twice its breadth, find the length and breadth of the rectangle.
6. A square floor has a side length of (x+3) meters. Write an expression for the total area of the floor and simplify it.
7. Draw a graph for the equation y=2x+1 for values of x ranging from -2 to 2. Plot the points and label the axes clearly.
8. The dimensions of a rectangular park are 30 m by 20 m. A walking path 2 m wide is constructed around the park. Find the area of the walking path.
9. A cuboidal box has dimensions 5 cm, 8 cm, and 12 cm. Calculate its surface area and volume.
10. Two triangles $\triangle$ABC and $\triangle$DEF are similar. If the sides of $\triangle$ABC are 6 cm, 8 cm, and 10 cm, and the smallest side of $\triangle$DEF is 9 cm, find the lengths of the other two sides of $\triangle$DEF.

Sample Learning Level Tracker

(Teachers are suggested to maintain this tracker at the end of each week)

LEARNING LEVEL TRACKER

About the Traker: Keep a record of weekly assessment results in the traker. As you conduct assessment based on the activities suggested.

Put a tick mark as per the following:
Level 1 (Needs support): Not able to solve problems and having difficulty comprehending the problem
Level 2 (Satisfactory): Solves most of the problems with external support
Level 3 (Excellent): Solves problems independently with minimum external support

Name of the School	**UDISE**
Name of the Teacher	**District**
Assessment Date	

Roll No.	Name of the Student	Week 3																	
		7.M.L013			7.M.L014			8.M.L012			8.M.L017			8.M.L018			8.M.L019		
		Level 1	Level 2	Level 3	Level 1	Level 2	Level 3	Level 1	Level 2	Level 3	Level 1	Level 2	Level 3	Level 1	Level 2	Level 3	Level 1	Level 2	Level 3

Main Menu

CM IMPACT
Meghalaya Class Readiness Programme

MATHEMATICS

APPENDIX

Main Menu

Pre-requisite Competency and Learning Outcomes essential for Grade-level learning

<table>
<tr><th>Competency
Middle Stage (MS)</th><th>Pre-requisite LO</th><th>Grade-level</th></tr>
<tr><td rowspan="2">C-1.6
Explores and applies fractions (both as ratios and in decimal form) in daily-life situations</td><td>6.M.LO6
Solves problems on daily life situations involving addition and subtraction of fractions / decimals</td><td rowspan="4">9.M.LO1
Applies logical reasoning in classifying real numbers, proving their properties and using them in different situations</td></tr>
<tr><td>7.M. LO3
Uses algorithms to multiply and divide fractions/decimals</td></tr>
<tr><td>C-1.4
Explores and understands sets of numbers, such as whole numbers, fractions, integers, rational numbers, and real numbers, and their properties, and visualises them on the number line</td><td>8.M.LO1
Generalises properties of addition, subtraction, multiplication and division of rational numbers through patterns</td></tr>
<tr><td rowspan="2">C-1.2
Discovers, identifies, and explores patterns in numbers and describes rules for their formation (e.g., multiples of 7, powers of 3, prime numbers), and explains relations between different patterns</td><td>6.M.LO2
Recognises and appreciates (through patterns) the broad classification of numbers as even, odd, prime, co-prime, etc.</td></tr>
<tr><td>6.M.LO3
Applies HCF or LCM in a particular situation</td></tr>
<tr><td>C-2.3
Forms algebraic expressions using variables, coefficients, and constants and manipulates them through basic operations</td><td>7.M.LO7
Adds/subtracts algebraic expressions</td><td></td></tr>
</table>

	8.M.LO7 Multiplies algebraic expressions	**9.M.LO2** Identifies/classifies polynomials among algebraic expressions and factorises them by applying appropriate algebraic identities
	8.M.LO8 Uses various algebraic identities in solving problems of daily life	
C-2.4 Poses and solves linear equations to find the value of an unknown, including to solve puzzles and word problem	**7.M.LO6** Represents daily life situations in the form of a simple equation and solves it	**9.M.LO3** Relates the algebraic and graphical representations of a linear equation in one or two variables and applies the concept to daily life situations
	8.M. LO6 Solves puzzles and daily life problems using variables	
C-3.2 Outlines the properties of lines, angles, triangles, quadrilaterals, and polygons and applies them to solve related problems	**7.M.LO13** Classifies pairs of angles based on their properties as linear, supplementary, complementary, adjacent and vertically opposite and finds value of the one when the other is given	**9.M.LO4** Identifies similarities and differences among different geometrical shapes **9.M.LO5** Derives proofs of mathematical statements particularly related to geometrical concepts, like parallel lines, triangles, quadrilaterals, circles, etc., by applying axiomatic approach and solves problems using them
	7.M.LO14 Explains congruency of triangles on the basis of the information given about them like (SSS, SAS, ASA, RHS)	
	8.M.LO12 Verifies properties of Quadrilaterals and establishes the relationship between them through reasoning	
	8.M.LO17 Finds the area of a polygon	

C-4.1 Discovers, understands, and uses formulae to determine the area of a square, triangle, parallelogram, and trapezium and develops strategies to find the areas of composite 2D shapes	**8.M.LO18** Finds surface area and volume of cuboidal and cylindrical object	**9.M.LO12** Derives formulae for surface areas and volumes of different solid objects like, cubes, cuboids, right circular cylinders/ cones, spheres and hemispheres and applies them to objects found in the surroundings
C-5.2 Selects, creates, and uses appropriate graphical representations (e.g., pictographs, bar graphs, histograms, line graphs, and pie charts) of data to make interpretations	**8.M.LO19** Draws and interprets bar charts and pie charts	**9.M.LO10** Analyses data by representing it in different forms like, tabular form (grouped or ungrouped), bar graph, histogram (with equal and varying width and length), and frequency polygon

CM IMPACT
Meghalaya Class Readiness Programme

CHIEF MINISTER'S INITIATIVE TO MAXIMIZE PASS ACHIEVEMENT AND CLASSROOM TRIUMPH

SCIENCE

Main Menu

WEEK 1 : DAY 1

Activity 1 Exploring Changes: Demonstration and Classification

35 mins

Learning Objective

At the end of this activity, students will be able to classify materials, objects, organisms, phenomena, and processes based on properties or characteristics.

- Prepare the demonstration table with materials including ice cubes, a burning candle, vinegar, baking soda, iron nails, and copper sulphate solution.
- Explain the concept of physical and chemical changes, emphasising observable properties like state, colour, or gas formation.
- Conduct a series of experiments:
  - Melt ice and describe the process as a physical change.
  - Tear paper and explain how its properties remain unchanged.
  - Mix vinegar and baking soda to observe fizzing, a chemical change.
  - Dip iron nails into copper sulphate solution and observe the reddish-brown coating as a chemical change.
- Engage students in discussion, asking them to describe the observed changes and classify each as physical or chemical.
  - Summarise the activity by reiterating the differences between physical and chemical changes, connecting them to real-life examples.

WEEK 1 : DAY 1

Activity 2 Change Detectives: Hands-on Investigation

35 mins

Learning Objective

At the end of this activity, students will be able to classify materials, objects, organisms, phenomena, and processes based on properties or characteristics.

- Set up stations around the classroom, each with materials for different changes:
  - **Station 1:** Melting ice.
  - **Station 2:** Dissolving salt in water.
  - **Station 3:** Rusted iron nails.
  - **Station 4:** Cutting an apple.
- Divide the class into small groups and provide each group with an observation sheet.
- Direct students to visit each station and perform the given tasks:
  - Observe and record changes in state, colour, texture, or gas formation.
  - Classify each change as physical or chemical, noting their justifications.
- Facilitate group presentations, where teams explain their observations and classifications.
- Conclude the session with a teacher-led review, reinforcing the criteria used to distinguish between physical and chemical changes and highlighting key takeaways from the activity.

WEEK 1 : DAY 2

Activity 1 Temperature Trail

35 mins

Learning Objective

At the end of this activity, students will be able to measure physical quantities and expresses them in SI units.

- Arrange 3-4 stations around the classroom, each equipped with a thermometer (digital or alcohol-based), a beaker of water at a specific temperature (e.g., cold, room temperature, warm, hot), and a data recording sheet.
- Show students how to use a thermometer correctly, including how to read the scale and record measurements.
- Divide students into small groups (3-4 per group) and assign each group a starting station.
- Ask each group to measure and record the temperature of the water at their station in degrees Celsius (°C).
- Rotate groups through all stations, ensuring every group measures temperatures at each station.
- Gather all groups together to discuss their observations. Highlight variations and emphasise accuracy in reading and recording temperatures.

WEEK 1 : DAY 2

Activity 2 Thermometer Craft

35 mins

Learning Objective

At the end of this activity, students will be able to measure physical quantities and expresses them in SI units.

Teachers can either arrange the listed materials or ask students to bring them a day in advance.

- Provide each student with a plastic straw, a small bottle, water mixed with a few drops of food colouring, and a modelling clay cap.
- Guide students to construct a simple thermometer by inserting the straw into the bottle, sealing it with modelling clay, and ensuring the straw is upright.
- Instruct students to place their thermometers in water at different temperatures and observe the rise and fall of the coloured water in the straw.
- Help students mark a rough temperature scale on the straw, noting the highest and lowest points during the activity.
- Discuss how the expansion and contraction of water with temperature changes can simulate a thermometer's function.
- Ask students to compare their crafted thermometer with a standard thermometer and discuss the importance of SI units in scientific measurements.

WEEK 1 : DAY 3

Activity 1 Fertiliser and Manure Relay

35 mins

Learning Objective

At the end of this activity, students will be able to differentiate materials and organisms based on their properties, structure, and functions.

- Divide students into small groups of 4-5 members.
- Create Cards listing various properties (e.g., organic, inorganic, nutrient content, source) and representing fertilisers (e.g., urea, NPK fertiliser) and manures (e.g., compost, cow dung manure). You may take students help to create these cards beforehand.
- Provide each group with cards listing properties
- Distribute sample cards representing fertilisers (e.g., urea, NPK fertiliser) and manures (e.g., compost, cow dung manure) to the groups.
- Instruct the groups to categorise the cards into "Fertiliser" or "Manure" based on the given properties.
- Ask each group to identify the properties listed on printed cards for each sample card and explain the reasoning behind their categorisation.
- Discuss as a class the advantages and disadvantages of fertilisers and manures based on the presented information.

WEEK 1 : DAY 3

Activity 2 Sustainable Farming Design

35 mins

Learning Objective

At the end of this activity, students will be able to make efforts to protect the environment

Teachers can either arrange the listed materials or ask students to bring them a day in advance.

- Divide students into groups, forming small teams of 4-5 students each.
- Provide materials by distributing A3-sized sheets, coloured markers, and pictures of crops, fertilisers, and manure (either printed or drawn).
- Introduce the scenario by telling students: "Imagine you are farmers designing a field plan for sustainable crop production. You must decide whether to use fertilisers, manure, or a combination of both, considering the impact on the environment."
- Assign roles. Each group should select a 'planner', a 'presenter', and two 'researchers' to focus on the benefits and drawbacks of fertilisers and manure.
- Encourage discussion by asking students to deliberate and draw a field layout, including areas for crops, zones where manure will be applied, and areas for fertilisers, if used.
- Add details by instructing them to note the environmental advantages of their choices, such as reduced soil erosion, improved biodiversity, or minimised water pollution.
- Groups will present their field plans to the class, explaining how their choices balance productivity and environmental health.

WEEK 1 : DAY 4

Activity 1 Irrigation Strategies Exploration

35 mins

Learning Objective

At the end of this activity, students will be able to differentiate materials and organisms based on their properties, structure, and functions.

- Explain the difference between traditional and modern irrigation methods, including their materials, processes, and environmental impact. Use visuals or short videos for better understanding.
- Form small groups of students and assign each group a traditional or modern irrigation method (e.g., drip irrigation, sprinkler systems, canal irrigation, etc.).
- Give each group printed materials (textbooks, library resources) to learn about their assigned irrigation method. Include pictures, descriptions, and details about how the method functions.
- Ask each group to create a small working model or diagram of their irrigation method using craft supplies such as cardboard, straws, clay, and water.
- Instruct the groups to prepare a short presentation explaining:
  - The materials used in the method.
  - How it functions.
  - Its efficiency in terms of water usage and crop yield.
- Guide a classroom discussion where groups share their findings and compare traditional and modern methods. Focus on differentiating factors such as water conservation, labour intensity, and suitability for various crops.
- Wrap up by highlighting how irrigation strategies affect crop production and the role of sustainable practices.

WEEK 1 : DAY 4

Activity 2 Design Your Irrigation Model

35 mins

Learning Objective

At the end of this activity, students will be able to construct models using materials from surroundings and explains their working.

- Begin by discussing the importance of irrigation in agriculture. Highlight different methods, such as traditional methods (e.g., canals) and modern methods (e.g., drip irrigation, sprinklers).
- Divide the students into small groups of 3-4. Each group will construct a model representing a method of irrigation.
- Distribute basic materials such as plastic bottles, pipes, straws, clay, small plants, and water. Encourage students to use other recyclable materials they can find in the classroom.
- Assign each group a specific method of irrigation to model (e.g., a canal system, drip irrigation, or sprinklers).
- Guide the groups as they build their irrigation systems. For example:
  - Use a bottle with holes to create a simple sprinkler model.
  - Connect straws to mimic drip irrigation for small plants.
  - Design a canal system using clay and small water pathways.
- Ask each group to demonstrate their model by pouring water and observing how it reaches the plants.
- Have each group explain their model to the class, focusing on:
  - How water flows in their system.
  - The efficiency of water usage.
  - Possible real-world applications.
- Facilitate a discussion on which methods conserve the most water and why these techniques are important for sustainable farming.

WEEK 1 : DAY 5

Recapitulation

20 mins

- Begin Day 5 by revisiting the topics and concepts discussed over the past four days.
- Conduct CFU (Check For Understanding) quizzes to assess student comprehension and identify any learning gaps.
- Collaboratively summarise the week's lessons by writing key points or formulas on the board with input from the students.

Worksheet

50 mins

Write the following questions on the Board and ask students to solve them in their notebooks:

1. A container has a mass of 2.5 kilograms. Calculate its weight in grams and explain the relationship between kilograms and grams.
2. Examine the following materials:
   a. Copper wire
   b. Plastic bag
   c. Iron nail
   d. Wooden block.
   Classify these materials into conductors and insulators of electricity and explain the properties that guided your classification.
3. A student recorded the temperature of boiling water as 100°C. Express this temperature in Kelvin and explain how this value classifies water as a liquid at this temperature.
4. Define fertilisers and manures. Provide two key differences between them with examples.
5. Explain one modern irrigation method and one traditional irrigation method. Highlight one advantage and one disadvantage for each method.
6. A farmer has been using chemical fertilisers for several years and has noticed that the soil quality has deteriorated. Suggest two possible solutions the farmer could adopt to improve soil health. Justify your answer.

Sample Learning Level Tracker

(Teachers are suggested to maintain this tracker at the end of each week)

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Name of the School	**UDISE**
Name of the Teacher	**District**
Assessment Date	

Roll No.	Name of the Student	Week 1								
		SS C-1.3			MS C-1.2			MS C-3.2		
		Level 1	Level 2	Level 3	Level 1	Level 2	Level 3	Level 1	Level 2	Level 3

WEEK 2 : DAY 1

Activity 1 Speed Simulation Relay

35 mins

Learning Objective

At the end of this activity, students will be able to relate processes and phenomena with their causes, focusing on uniform and non-uniform motion.

- **Set up a motion simulation zone:**
  - Use chalk or tape to create a straight 10-metre track in the classroom or playground.
  - Mark the start and end points clearly.
- **Prepare the activity materials:**
  - Provide stopwatches and measurement tools (like measuring tapes).
  - Use small objects or toys (e.g., toy cars or balls or pebbles) to represent moving bodies.
- **Introduce the task:**
  - Explain the difference between uniform and non-uniform motion through real-life examples, like cars moving at constant speed vs. varying speeds in traffic.
- **Divide students into small groups:**
  Assign each group to simulate motion for specific scenarios:
  - **Uniform Motion:** Push a toy car to move at a steady speed across the track.
  - **Non-Uniform Motion:** Drop a ball to roll across the track naturally or push it with varying force.
- **Conduct observations:**
  - Ask each group to time their objects' motion using the stopwatch.
  - Instruct them to record the time taken at each metre mark for their object.
- **Guide their analysis:**
  - Help students plot their observations on a distance-time graph.
  - Discuss why the graph for uniform motion is a straight line, while for non-uniform motion, it is uneven.
- **Facilitate a group presentation:**
  - Encourage groups to explain the causes behind their observed motion and graphs.

WEEK 2 : DAY 1

Activity 2 Change Detectives: Hands-on Investigation

35 mins

Learning Objective

At the end of this activity, students will be able to relate processes and phenomena with causes.

- Divide the class into small groups of 4-5 students each.
- Hand each group a set of cards containing descriptions of motions (e.g., "A train travelling at 80 km/h steadily," "A ball rolling down a slope," or "A car in stop-and-go traffic") and materials to plot simple speed-time graphs (graph paper, rulers, and pencils).
- Instruct each group to:
  - Categorise the motions on the cards as either uniform or non-uniform based on the descriptions.
  - Draw a speed-time graph for each motion, identifying whether it indicates uniform or non-uniform motion.
- Encourage groups to explain their reasoning for categorisation and graph interpretation.
- Ask each group to share one example of uniform and one of non-uniform motion with the class, displaying their graphs and reasoning.
- Conclude the activity by highlighting the key differences between uniform and non-uniform motion, linking them to their real-life causes (e.g., constant force vs. varying force).

WEEK 2 : DAY 2

Activity 1 Graph It Out!

35 mins

Learning Objective

At the end of this activity, students will be able to plot and interpret distance-time graphs.

- **Begin by explaining the importance of distance-time graphs in understanding motion.** Use relatable examples such as walking, running, or cycling to show how these graphs illustrate the relationship between distance and time. Emphasise how such graphs can help us understand different types of motion.
- **Provide each student group with graph paper, rulers, coloured pencils, and a set of pre-prepared data sets.** Each contains a table with distances covered over time intervals for different scenarios (e.g., a car driving, a person walking, or a train journey).
- **Divide the class into small groups of 4–5 students and assign one data card to each group.** Encourage them to collaborate and follow the steps carefully to plot the data.
- **Guide the students through the graphing process:**
  - Label the x-axis as 'Time (minutes)' and the y-axis as 'Distance (km)' on their graph paper.
  - Instruct them to plot the given data points accurately on the graph.
  - Ask them to join the points with a line to form the distance-time graph.
- **Ask each group to examine their graph and answer the following questions:**
  - Does the graph represent uniform or non-uniform motion?
  - Identify the steepest and flattest segments of the graph. What do these segments indicate about the object's motion (e.g., faster motion for steeper segments, slower for flatter segments)?

- **Allow each group to present their graph to the class.** Encourage them to explain what the graph shows about the motion, focusing on aspects like faster or slower segments and how they interpret the graph's features.
- **Summarise the key learnings with the class** by highlighting the importance of using graphs to understand motion and how they can be used to solve real-world problems, such as planning travel times or understanding speed changes in different scenarios.

WEEK 2 : DAY 2

Activity 2 Race to the Graph

35 mins

Learning Objective

At the end of this activity, students will be able to plot and interpret distance-time graphs.

Teachers can either arrange the listed materials or ask students to bring them a day in advance.

- Divide students into groups of 4-5 members.
- Distribute graph paper, rulers, stopwatches, and small toy cars or balls to each group.
- Assign roles:
  - One student as the timer.
  - One as the recorder.
  - One as the operator (to push or release the toy car/ball).
  - Two as observers (to measure distance travelled at intervals).
  - Instruct each group to release the toy car/ball from a fixed point and measure the distance covered at equal time intervals (e.g., every 2 seconds).
- Record the distance covered after each time interval.
- Guide students to plot the recorded data on the graph paper, with time on the x-axis and distance on the y-axis.
- Connect the points to observe the pattern of motion (e.g., straight line, curve, etc.).
- Ask groups to interpret their graphs and identify whether the motion was uniform or non-uniform.
- Encourage groups to compare their results with other groups and discuss variations.
- Lead a discussion to consolidate learning by asking:
  - "What does a straight-line graph indicate?"
  - "What can you infer from a curved graph?"
  - "How does the slope of the graph relate to speed?"

WEEK 2 : DAY 3

Activity 1 Sound Relay: Exploring Propagation

35 mins

Learning Objective

At the end of this activity, students will be able to plot and interpret graphs representing the relationship between distance and time.

- **Begin by explaining the basic concept of sound propagation**, emphasising that sound needs a medium (solid, liquid, or gas) to travel. Discuss how particles in the medium transfer energy from one point to another, causing sound waves to move.
- **Divide the students into small groups of 4-5** to encourage hands-on exploration and discussion.
- **Provide each group with the following materials:**
  - A tuning fork
  - A bowl of water
  - A string tied between two plastic cups (to make a simple cup-and-string phone)
  - A cardboard tube (to simulate sound waves in air)
  - A solid rod (such as a ruler or stick)
- **Assign each group to a different station** where they will explore sound propagation through various mediums:
  - **Station 1:** Strike the tuning fork and observe the ripples created in the water, showing how sound can travel through liquids.
  - **Station 2:** Use the cup-and-string phone to observe how sound travels through a solid string.
  - **Station 3:** Speak through the cardboard tube to understand how sound waves travel through air.
  - **Station 4:** Tap the solid rod and press it to their ear to observe how sound travels through a solid medium.
- **After completing all stations, reconvene as a class.** Ask each group to share their observations and discuss the role of the medium in sound propagation.
- **Facilitate a class discussion** on how the vibrations of particles in different mediums cause sound waves to propagate. Encourage students to relate their observations from each station to the process of energy transfer and sound transmission.

WEEK 2 : DAY 3

Activity 2 Sound Wave Relay

35 mins

Learning Objective

At the end of this activity, students will be able to relate the process of sound propagation with its cause by understanding the medium's role in transmitting sound.

- Begin with a discussion on how sound travels through different mediums such as solids, liquids, and gases. Use simple examples like hearing through walls or underwater.
- Divide students into small groups of 4-5 members.
- Provide materials such as a tuning fork, a metal rod, a string, a balloon, and a container of water for each group.
- Assign tasks to each group:
  - Strike the tuning fork and observe its vibration.
  - Touch the vibrating tuning fork to the rod and string. Observe how sound is transmitted through these materials.
  - Place the balloon near the vibrating tuning fork and notice any changes in the sound.
  - Submerge the tuning fork in water and observe how sound propagates.
- Guide the students to record their observations about the sound's intensity and clarity through different materials.
- Facilitate a group discussion where each group shares their findings. Ask them to relate their observations to the properties of the medium, such as density and elasticity.
- Conclude the activity by summarising how sound requires a medium to propagate and explaining why its transmission varies across different materials.

WEEK 2 : DAY 4

Activity 1 Sound Wave Explorers

35 mins

Learning Objective

At the end of this activity, students will be able to explain processes and phenomena related to amplitude, time period, and frequency of sound waves.

Teachers can either arrange the listed materials or ask students to bring them a day in advance.

- **Arrange the classroom into small groups of 4-5 students** and provide each group with a rubber band stretched across a small cardboard frame, a ruler, and a stopwatch.
- **Start by demonstrating how plucking the rubber band creates a sound** and show how adjusting the force of the pluck affects both the loudness and pitch.
- **Have each group pluck the rubber band with varying strengths** and observe how the size of the vibrations (amplitude) relates to the loudness of the sound produced.
- **Ask the students to use the stopwatch to measure the time it takes for 10 complete vibrations** and then divide the total time by 10 to calculate the time period of one vibration.
- **Guide the groups to calculate the frequency of the sound** using the formula:

$$Frequency = \frac{1}{Time\ Period}$$

Encourage the students to compare the frequencies produced when they pluck the rubber band at different strengths.

- **Have each group record their observations and calculations on chart paper,** and suggest they include diagrams to illustrate their findings on amplitude, time period, and frequency.
- **Invite each group to present their results to the class** and lead a discussion to summarise how amplitude, time period, and frequency are related and how they influence our perception of sound.

WEEK 2 : DAY 4

Activity 2 Sound Wave Visualisation Lab

35 mins

Learning Objective

At the end of this activity, students will be able to explain processes and phenomena related to amplitude, time period, and frequency of sound waves.

Teachers can either arrange the listed materials or ask students to bring them a day in advance.

- Divide students into groups of 4-5.
- Provide each group with:
  - A smartphone or tablet with a sound wave visualisation app (e.g., Spectrum View, Oscilloscope).
  - A speaker or sound-producing device.
  - Objects to vary the sound (e.g., different-sized bottles, tuning forks, rubber bands, or a toy drum).

Step 1: Visualising Amplitude

- Ask students to make a sound (e.g., tapping a drum or clapping) near the microphone.
- Observe how louder sounds create higher peaks (greater amplitude) on the waveform.
- Record observations in a table.

Step 2: Exploring Frequency

- Use objects like bottles or rubber bands to produce sounds of varying pitch.
- Observe how higher-pitched sounds create more closely spaced waves (higher frequency).
- Record the frequency displayed on the app for each sound.

Step 3: Measuring Time Period

- Guide students to measure the time period of a wave using the app's display (e.g., by identifying one complete wave cycle).
- Calculate the frequency using the formula $f = \frac{1}{T}$

- Instruct groups to summarise their findings by explaining:
  - The relationship between loudness and amplitude.
  - The relationship between pitch and frequency.
- Ask each group to present their findings along with sketches of waveforms they observed.

WEEK 2 : DAY 5

Recapitulation

20 mins

- Begin Day 5 by revisiting the topics and concepts discussed over the past four days.
- Conduct CFU (Check For Understanding) quizzes to assess student comprehension and identify any learning gaps.
- Collaboratively summarise the week's lessons by writing key points or formulas on the board with input from the students.

Worksheet

50 mins

Write the following questions on the Board and ask students to solve them in their notebooks:

1. A car travels 60 km in the first hour, 40 km in the second hour, and 70 km in the third hour.
   a. Is the car moving with uniform motion? Justify your answer.
   b. Calculate the average speed of the car for the journey.
2. Observe the following distance-time data for a bicycle ride:

Time (minutes)	Distance (meters)
0	0
2	40
4	80
6	80
8	120

   a. Plot the distance-time graph for the given data.
   b. Identify and explain the segment where the bicycle is at rest.
3.
   a. Define amplitude, time period, and frequency with an example of their application in sound waves.
   b. If a sound wave has a frequency of 200 Hz and the speed of sound in air is 340 m/s, calculate its wavelength.

Sample Learning Level Tracker

(Teachers are suggested to maintain this tracker at the end of each week)

LEARNING LEVEL TRACKER

About the Traker: Keep a record of weekly assessment results in the traker. As you conduct assessment based on the activities suggested.

Put a tick mark as per the following:
Level 1 (Needs support): Not able to solve problems and having difficulty comprehending the problem
Level 2 (Satisfactory): Solves most of the problems with external support
Level 3 (Excellent): Solves problems independently with minimum external support

Name of the School	**UDISE**
Name of the Teacher	**District**
Assessment Date	

Roll No.	Name of the Student	Week 2		
		MS C-2.4		
		Level 1	Level 2	Level 3

WEEK 3 : DAY 1

Activity 1 Tug-of-Force Investigation

35 mins

Learning Objective

At the end of this activity, students will be able to explain processes and phenomena related to the effects of forces such as changes in shape, motion, and direction.

Teachers can either arrange the listed materials or ask students to bring them a day in advance.

- **Divide the students into small groups** and provide each group with a set of simple materials, including a small toy car, rubber bands, and weights (e.g., coins or small stones).
- **Use a rubber band to pull the toy car**, explaining how applying force changes the car's motion.
- **Ask the groups to investigate the effects of different forces** by stretching the rubber band and observing the resulting motion of the car.
- **Provide weights to attach to the toy car**, and instruct the students to pull it again, noting how the added weight affects the car's movement.
- **Ask each group to vary the strength of their pulls** and describe how the toy car's motion changes in terms of speed and direction.
- **Instruct the groups to record their observations on a chart**, noting how different levels of force and weight affect motion.
- **Let each group present their findings to the class** and explain the observed phenomena using terms such as "force," "motion," "mass," and "direction."

WEEK 3 : DAY 1

Activity 2 Force and Its Effects Relay

35 mins

Learning Objective

At the end of this activity, students will be able to explain processes and phenomena related to the effects of forces such as changes in shape, motion, and direction.

- Form small groups of 4-5 students.
- Provide each group with the following:
  - Scenario cards describing real-life situations (e.g., "A football being kicked", "A car braking to stop", "A book resting on a table").
  - A set of force-effect categories (e.g., "Change in motion", "Change in shape", "Change in direction", "No visible effect").
- Instruct the groups to categorise each scenario card under the appropriate force-effect category. For example:
  - "A football being kicked" → "Change in motion".
  - "A spring being compressed" → "Change in shape".
- Ask each group to discuss and explain their reasoning for assigning each scenario to a category.
- Groups will present their categorisations to the class, justifying their choices by describing the force at play and its observed effect.
- Lead a class discussion to clarify the concepts and reinforce understanding of the effects of forces. Highlight examples where multiple effects occur simultaneously.
- Conclude with a quick quiz asking groups to identify force effects in new scenarios (e.g., "What happens when a sponge is squeezed?" or "What force effect explains a parachute slowing descent?").

WEEK 3 : DAY 2

Activity 1 Force Detective Challenge

35 mins

Learning Objective

At the end of this activity, students will be able to differentiate materials and organisms on the basis of their properties, structure, and functions.

Teachers can either arrange the listed materials or ask students to bring them a day in advance.

- Divide the class into small groups of 4-5 students each.
- Provide materials to each group, including a rubber ball, a wooden block, sandpaper, a smooth tile, and a measuring tape.
- Ask each group to set up an experiment to explore the effects of muscular force and friction:
  - Push the wooden block across both the sandpaper and the smooth tile.
  - Roll the rubber ball on the same surfaces.
- Instruct students to measure and record:
  - The distance travelled by the wooden block and the ball on each surface.
  - The effort required to push or roll (e.g., "easy," "moderate," "difficult").
- **Guide the groups in discussing** how the surface texture (smooth vs. rough) affects movement and the differences between the muscular force used and the friction observed on various surfaces.
- Encourage groups to summarise their findings on a chart with headings such as:
  - Material/Surface
  - Force Type
  - Effect Observed
  - Conclusion.
- Invite each group to present their results, focusing on:
  - How friction and muscular force acted as contact forces.
  - How the properties of materials influenced these forces.

WEEK 3 : DAY 2

Activity 2 Friction Olympics

35 mins

Learning Objective

At the end of this activity, students will be able to differentiate materials and organisms on the basis of their properties, structure, and functions.

- Divide students into groups of 4-5.
- Assign roles within each group: one student releases the toy car, one measures the distance, one times the motion, and one records the data.
- Provide each group with toy cars and a set of surface materials.
- Create a mini racecourse using different surfaces (e.g., sandpaper, tiles, fabric, rubber mat).
- Ensure all groups use the same height for releasing the cars.
- Ask groups to release the toy car from the fixed height on each surface.
- Measure and record the distance travelled and the time taken to stop.
- Repeat trials for accuracy and consistency of data.
- Instruct groups to calculate the average distance travelled and time taken for each surface.
- Encourage them to observe and compare results to identify the effects of surface texture on motion.
- Pose real-world scenarios (e.g., designing shoes, tyres, or road surfaces) and ask groups to relate their findings.
- Challenge groups to design a track optimised for specific purposes (e.g., racing, braking).
- Ask each group to present their results and explain their observations.
- Facilitate a discussion on how friction can be advantageous or disadvantageous based on context.

WEEK 3 : DAY 3

Activity 1 Sound Relay: Exploring Propagation

35 mins

Learning Objective

At the end of this activity, students will be able to differentiate materials and organisms on the basis of their properties, structure, and functions.

- **Begin by explaining the concept of non-contact forces:** gravitational, electrostatic, and magnetic. Use real-world examples, such as gravity acting on a falling apple, a charged balloon attracting pieces of paper, or magnets attracting iron nails.
- **Divide the class into small groups of 4-5 students.**
- **Provide each group with:**
  - A small magnet
  - A charged balloon or comb
  - Lightweight objects (e.g., paperclips, pieces of paper, cork)
  - A small ball and ramp for observing gravity.
- **Have students conduct experiments to explore the different types of non-contact forces:**
  - **Magnetic Force:** Ask groups to test the magnet with various materials (e.g., paper, wood, iron nails) and note which are attracted.
  - **Electrostatic Force:** Have groups rub the balloon or comb against their hair to create a charge and observe how it attracts small paper bits.
  - **Gravitational Force:** Use the ramp to roll the ball and observe how gravity pulls it downwards.
- **Direct students to record their observations in a table with columns for:**
  - Force Type
  - Material Used
  - Observation (e.g., "Iron nail attracted by magnet").
- **Facilitate a discussion** where each group presents their findings. Highlight the differences between gravitational, magnetic, and electrostatic forces, and how they act on various materials.
- **Summarise the properties of materials** and how non-contact forces interact with them, reinforcing the learning objectives.

WEEK 3 : DAY 3

Activity 2 Sound Wave Relay

35 mins

Learning Objective

At the end of this activity, students will be able to differentiate materials and organisms on the basis of their properties, structure, and functions.

Teachers can either arrange the listed materials or ask students to bring them a day in advance.

- Split students into small groups of 3-4.
- Provide each group with a set of materials and an observation worksheet.
- Briefly explain the goal: to explore how different materials interact with non-contact forces.
- Conduct Experiments at Each Station:

  Station 1: Gravitational Force
  - Fill the container with water. Place a small ping pong ball on the surface.
  - Ask students to gently push the ball downward and observe how it always returns to the surface.
  - Discuss how gravity works to pull the ball down, but buoyancy resists the pull.

  Station 2: Electrostatic Force
  - Provide a plastic pen and small paper bits.
  - Instruct students to rub the pen on their hair or a woollen cloth and then bring it near the paper bits.
  - Ask them to record how the bits behave when the pen is brought close and when it is moved farther away.

  Station 3: Magnetic Force
  - Provide a bar magnet and small steel nails.
  - Ask students to hold the magnet at varying distances from the nails and note when the nails are attracted.
  - Test how the interaction changes with the addition of a piece of aluminium foil between the magnet and the nails.

Station 4: Combining Forces

- Give each group a graphite pencil, a straw, and a digital scale.
- Ask them to suspend the straw horizontally by tying it with a string. Use the bar magnet to attract one end of the straw.
- Record how the suspended straw moves toward the magnet. Discuss how forces like gravity and magnetism act simultaneously.

- Provide groups with an observation worksheet to record:
  - The type of force demonstrated
  - How the distance between objects affects the force
  - The effect of material type on the interaction
- After rotating through stations, bring the class together for a discussion:
  - Which force acts on all objects, regardless of material?
  - How does the material type influence magnetic and electrostatic forces?
  - Can they think of situations where multiple forces act at the same time?
- Conclude by reinforcing the unique characteristics of each force:
  - Gravity is universal and acts on all objects.
  - Magnetic and electrostatic forces depend on material properties and proximity.

WEEK 3 : DAY 4

Activity 1 Sound Wave Explorers

35 mins

Learning Objective

At the end of this activity, students will be able to explain processes and phenomena related to pressure exerted by liquids and gases.

- Prepare a water-filled transparent container, a set of balloons, and a few plastic straws. Position the container so that it is visible to the entire class.
- Make a small hole near the bottom of the container and insert a straw. Seal the area around the straw with clay or another waterproof seal. Ask students to observe as you open the hole and water flows out.
- Ask, “Why does the water flow out with such force? What happens if the straw is positioned higher or lower in the container?”
- Divide the class into small groups and provide each group with:
  - A smaller container filled with water.
  - Balloons, straws, and tape.
  - Instructions to create their own setup to observe liquid pressure at different depths.
- Instruct the groups to make holes at various heights in their containers and predict which will release water with greater force. They must explain the observed phenomena based on the relationship between depth and pressure.
- Inflate a balloon and attach it to a straw. Demonstrate how the air flows out when the balloon is released. Discuss how gases exert pressure in all directions.
- Bring all groups together and summarise the findings. Link their observations to real-life phenomena such as water tanks, pressure in syringes, and challenges faced by deep-sea divers.

WEEK 3 : DAY 4

Activity 2 Sound Wave Visualisation Lab

35 mins

Learning Objective

At the end of this activity, students will be able to explain processes and phenomena related to pressure exerted by liquids and gases.

- Divide students into small groups of 4–5 members. Provide each group with the following materials:
  - A balloon
  - A plastic bottle
  - A water container
  - A flexible straw
  - Tape
- Ask students to perform the following tasks:
  - Fill the bottle with water and cover the top with a balloon. Insert the straw through the balloon's neck, ensuring a tight seal with tape.
  - Instruct them to squeeze the balloon gently and observe how water flows through the straw.
  - Note their observations and record how pressure changes when the balloon is squeezed harder or softer.
- Discuss the principles of liquid pressure and how gases (inside the balloon) exert force on liquids, causing movement.
- Facilitate a class discussion where groups share their findings. Encourage students to explain real-life examples, such as how pumps work or how pressure affects water flow in pipes.
- Summarise the activity by explaining the relationship between depth, force, and area, reinforcing the concept of pressure in liquids and gases.

WEEK 3 : DAY 5

Recapitulation

20 mins

- Begin Day 5 by revisiting the topics and concepts discussed over the past four days.
- Conduct CFU (Check For Understanding) quizzes to assess student comprehension and identify any learning gaps.
- Collaboratively summarise the week's lessons by writing key points or formulas on the board with input from the students.

Worksheet

50 mins

1. A box initially at rest is pushed with a force of 15 N across a smooth floor.
   - Explain how the box will move when the force is applied.
   - Describe two effects of forces other than motion.
2.
   a. Give an example of each of the following types of forces:
      - Muscular force
      - Frictional force
      - Gravitational force
      - Magnetic force

   b. Describe the role of friction when riding a bicycle.
3.
   a. A diver feels more pressure underwater at 10 meters depth than at 5 meters depth. Explain why this happens.

   b. A balloon inflates when air is blown into it. Describe how air exerts pressure on the walls of the balloon.

Sample Learning Level Tracker

(Teachers are suggested to maintain this tracker at the end of each week)

LEARNING LEVEL TRACKER

About the Traker: Keep a record of weekly assessment results in the traker. As you conduct assessment based on the activities suggested.

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Name of the School	**UDISE**
Name of the Teacher	**District**
Assessment Date	

Roll No.	Name of the Student	Week 3					
		MS C-2.2			MS C-2.3		
		Level 1	Level 2	Level 3	Level 1	Level 2	Level 3

CM IMPACT
Meghalaya Class Readiness Programme

SCIENCE

APPENDIX

Main Menu

Pre-requisite Competency and Learning Outcomes essential for Grade-level learning

The Learning Outcomes in Science are consistent across grades, with concepts becoming progressively more complex as students advance. Accordingly, the following table outlines the concepts included in the MCRP, designed to support understanding the grade-level concepts students will encounter effectively.

Competency Middle Stage (MS)/ Secondary Stage (SS)	Prerequisite Concepts	Grade Level Concepts
MS C1.2 Describes changes in matter (physical and chemical) and uses particulate nature to represent the properties of matter and the changes	Physical and chemical change	Physical and chemical change
MS C1.3 Explains the importance of measurement and measures physical properties of matter in indigenous, non-standard and standard units using simple instruments	Measuring temperature	Change of states of matter
MS C3.4 Explains the conditions suitable for sustaining life on Earth and other planets	Fertilisers and manures	Crop production improvement
	Fertilisers and manures	Crop production improvement
	Irrigation - modern and traditional	Crop production improvement
	Irrigation	Crop production improvement

MS C2.1 Describes one-dimensional motion (uniform, nonuniform, horizontal, vertical) using physical measurements (position, speed, and changes in speed) through mathematical and diagrammatic representations	Speed - Uniform motion and non-uniform motion	Uniform and non-uniform motion
	Distance time graph	Graphical representation- distance -time
SS C-2.7 Describes the origin and properties of sound (wavelength, frequency, amplitude) and differences in what we hear as it propagates through different instruments	Propagation of sound	Propagation of sound
	Amplitude, time period and frequency	Characteristics of sound waves- pitch and speed
SS C-2.1 Applies Newton's laws to explain the effect of forces (change in state of motion: displacement and direction, velocity and acceleration, uniform circular motion, acceleration due to gravity) and analyses graphical and mathematical representations of motion in one dimension	Effects of forces	Balanced and unbalanced forces
	Contact force - muscular, friction	First Law of Motion
	Non- contact - gravitation, electrostatic, magnetic	Importance of universal law of gravitation
	Pressure exerted by liquids and gases	Pressure in fluid - buoyancy

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