Interactive Module on School Leadership

Developed by
SLA, SCERT Assam
in collaboration with NCSL - NEIPA, New Delhi

Enriching School Leaders Perspective on Learning That Thinks-From Rote to Reasoning

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LEARNING OBJECTIVES:

After completing the module, the school leader will be able to-

1 Promote and encourage Socratic questioning, reflection and reasoning in school

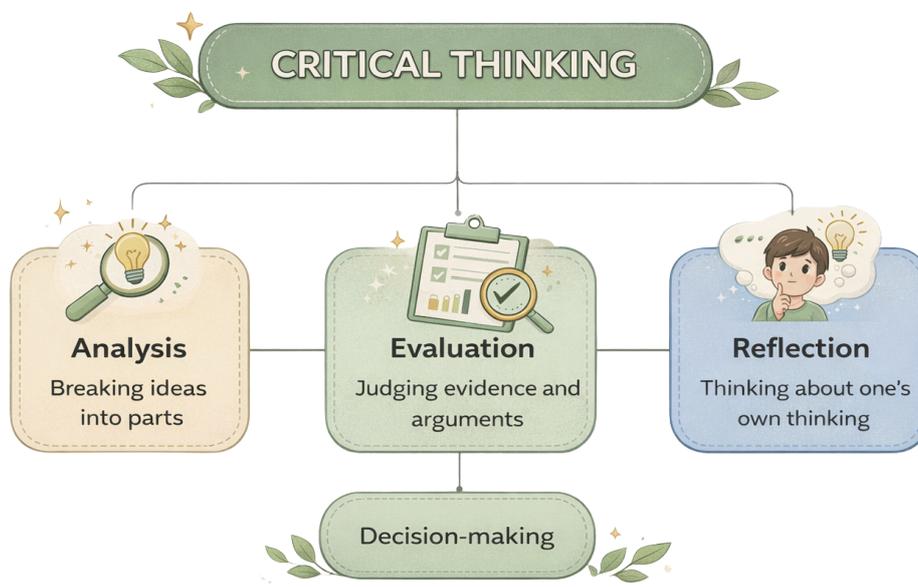**2** Integrate critical thinking in the school curriculum and classroom practices.

3 Design inquiry-based, experiential, and interactive learning activities.

4 Collaborative teaching-learning methods in school.

1.1 INTRODUCTION

Nurturing critical thinking serves as the cornerstone of holistic education and insightful learning. According to Peter A. Facione (1990), "Critical thinking is purposeful, self-regulatory judgment which results in interpretation, analysis, evaluation, and inference, as well as the explanation of the evidential, conceptual, methodological, or contextual considerations upon which that judgment is based."

CRITICAL THINKING

Analysis
Breaking ideas into parts

Evaluation
Judging evidence and arguments

Reflection
Thinking about one's own thinking

Decision-making

School is the dynamic space where the learner learns creation, analysing, and questioning. Critical thinking creates a learning space where the learners' values reasoning over rote learning. It begins with encouraging asking - questions, exchange of dialogues, analysis of problems, and reflection of experiences within an educational framework. Deep understanding of the why and how behind the concepts are very important to overcome mechanical learning or rote learning. For instance, instead of memorising the multiplication tables, learners should be able to comprehend that the concept of multiplication is a mere repetition of addition and should be able to apply it in appropriate situations.

Education for critical thinking enhances independent thinking skills where the learners acquire the ability to question and assess their credibility and relevance which helps them to apply their analytical skills, knowledge with flexibility and draw meaningful conclusions. Additionally, critical thinking contributes to an effective and persuasive communication which further aids in overcoming various challenges. For instance, in a classroom situation, options can be given to the learners to choose from in terms of activities like storytelling, drawing, making a model, etc.

Critical thinkers balance reason and originality which stimulates innovation and creativity. In addition, learners can engage in life-long learning since they ask questions that enable better comprehension which further leads to assimilation of new knowledge significantly, reflecting

ideas critically and eventually engaging in continuous learning. For example, by assigning a project to the students, 'Science around us', they observe how fans rotate, how clouds bring rain, how rainbow forms and the like, encouraging curiosity which acts as a catalyst for critical thinking connecting classroom learning with real life experiences.

Analyse - Evaluate & Reason

? **Critical thinking is the ability to _____, _____, and _____ before making a judgement.**

KEYWORDS: Guided enquiry, Reasoning, Socratic Questioning, Metacognitive Reflection, Problem-solving, Inquiry-based, Experiential, Interactive

1.1 SHARPENING REASONING SKILLS

Reasoning skills and scaffolded inquiry rests on the mainstays of critical thinking. It empowers analysing and evaluating, yielding to be more cognisant of facts before making decisions. In schools, reasoning must be consciously nurtured through questioning, reflection and guided reflection. In the whirlwind of modern change, it is crucial for the learners to adapt and find one's way through effective learning. Guided inquiry is a structured approach that fuels curiosity, encouraging students to ask meaningful questions, think critically about ideas and engage actively in constructing understanding. Guided inquiry shapes school ethos that promotes curiosity and reflective questioning which enhances students' ability to engage in higher order thinking skills and reflective analysis. Integrating guided inquiry into the classroom environment fosters lifelong learning enabling the students to address challenges with confidence and sound judgement.
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The National Education Policy (NEP) 2020 emphasises on inquiry based, discovery-oriented, and learner- centred pedagogy. It encourages moving away from rote learning and promoting reasoning, creativity, and conceptual understanding.

1.1.1 Guided Enquiry :

Guided inquiry is a learner-centred approach wherein the teacher plays the role of a compass, providing guidelines to the students to enable them to investigate questions, issues, or problems. It facilitates in scrutinizing the concepts and deduce conclusions from them. The teacher must play the role of a facilitator and provide them with thought-provoking questions and resource materials. This will guide the efforts of the learners in such a way that they would be able to investigate and discover answers by thinking, questioning, and reflecting. In guided enquiry, the learners choose the question, design the data collection method and draw inferences from the results providing maximum autonomy to the learners. Through guided inquiry reasoning, reflective analysis, and research-based insights are nurtured. Learning takes place when an insightful question provokes the curiosity in the minds of the learners allowing them to make inferences on their own, sparking independent learning skills among them.

The picture shows how learning begins with curiosity and ends with understanding rather than memorisation :

QUESTIONING
Teacher sparks curiosity

EXPLORING
Students observe & investigate

DISCUSSION
Sharing ideas & viewpoints

REFLECTION
Thinking about learning

CONCLUSION
Reasoned understanding

1.1.2 Socratic Questioning

Socratic questioning rooted in the philosophy of Socrates is one of the highly effective strategies which deepens reasoning and reflection. In Socratic questioning "telling" is replaced with "asking" which involves askin in g open-ended, investigative questions encouraging students to examine beliefs and logics behind them.
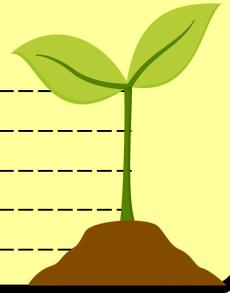

Thinking Together through Socratic questioning

This questioning method helps students to clarify their thoughts, find contradictions, and refine their reasoning. It turns classrooms into a zone of exchange of dialogues and not monologues.

Convert this question into a socratic question :
" Why do plants need sunlight?"

?

_____
_____
_____
_____
_____

1.1.3 Reflective learning for Critical Thinking

In knowledge-sharing contexts, reflection contributes to improved learning practices and stronger cognitive development among learners. Learners begin to think critically about what they have learned resulting in connection to their prior knowledge. New ideas, patterns, and diverse perspectives enable meaningful learning by evolving beyond memorisation and development of metacognitive abilities, raising awareness of their own thinking and providing insight into their learning processes. This helps them to think aloud, and they become aware of how they think. Through discussions, reasoning becomes visible enabling both the learner and teacher to recognise the gaps, misconceptions, and structured progressions of the process of their thoughts. Activities like peer review, 'thinking journals' or group reasoning enhances the reasoning process.

After a lesson, students will complete the following reflective task

💡 Today I learned _____ .

❓ I was confused about

💡 I understood better when _____

Next time I will try to _____ .

❓ School heads will discuss how often students get time to think this way?

1.1.4 Classroom Strategies

The school heads can engage in various pedagogical techniques, such as problem-based learning (PBL), where students analyse and solve real-world problems, which generates logical analysis and evidence-supported reasoning. The Think-Pair-Share strategy promotes collaboration, hence increasing the student's involvement in thinking, discussion, and sharing. Reflective questioning encourages students to reflect on their own thought processes and learning experiences. Further, role-play engages students with various perspectives; this develops problem-solving skills in them.
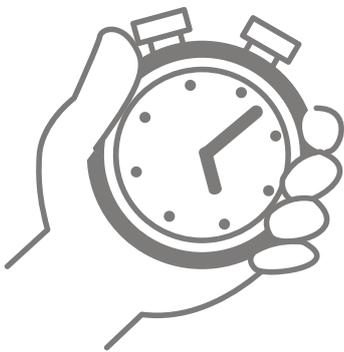
ACTIVITY:

Read and write how these strategies builds thinking

● **Role play** _____

● **Think-Pair-Share** _____

● **Problem-based learning** _____

Reflections

● **As a school head, how can you cultivate a learning environment where guided inquiry and reasoning are practiced regularly in a classroom setting?**

● **As a school head how can you empower your teachers to use Socratic questioning to promote a culture of thoughtful dialogue and questioning?**

● **What strategies can be used to nurture reasoning and reflective practices in a classroom setting?**

● **What strategies can you introduce to implement guided inquiry and reflective questioning in your school's pedagogical culture?**

● Today I learned that thinking means _____."

● One question I want to ask is _____."

● Thinking is fun when _____.

ACTIVITY:

Match the following:

Term	Meaning
Guided Inquiry	Thinking about one's own thinking
Socratic Questioning	Learning by asking and investigating
Metacognition	Asking 'why' instead of giving answers
Experiential learning	Learning by doing
Experiential learning	Learning by doing

1.2 CLASSROOMS INTO THINKING ROOMS

Integrating critical thinking into the school curriculum lays the foundation for lifelong pursuit for knowledge among students and teachers; it instills a sense of ownership in learners to question, analyse and put ideas into practice constructively. Integration of these goals throughout the subject domains transforms classrooms into learning arenas resulting in intellectual progression.

Reflection aligned with Bloom's Taxonomy

What can I try or design next ?

Which idea worked best and why?

How are these ideas connected ?

Where can i use this idea in real life ?

What does this idea mean ?

What did I learn today?

Fill in the idea:

Bloom's Taxonomy encourages improvement from_____ to _____ thinking.
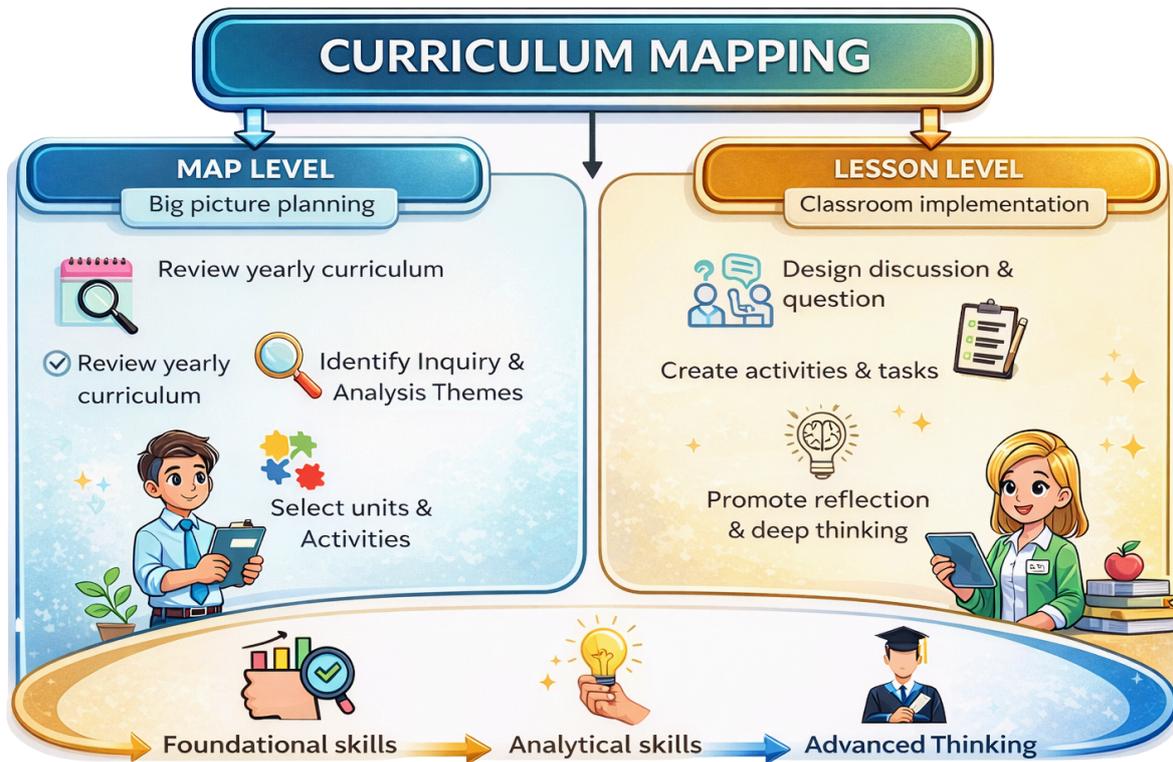
1.2.1 Curriculum Mapping

Mapping of the curriculum involves a systematic identification of what is taught, how it is taught, and how learning is assessed in the existing curriculum across all subjects and grades. It ensures coherence among learning outcomes, teaching strategies, and assessment to ensure that skill is introduced thoughtfully rather than unpredictably.
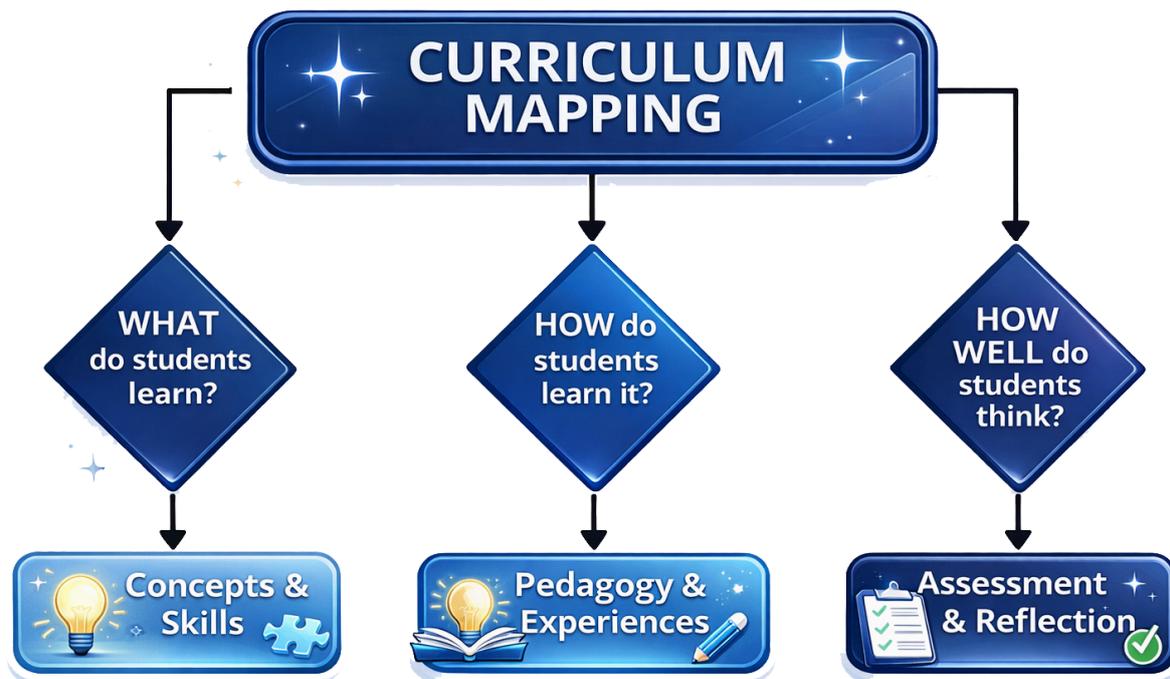
The teachers need to identify the high-impact points within each subject helping students to question, analyse, interpret, and reason. For example, through Science, students learn to question 'why' and 'how' things happen. Further, they form hypotheses based on their observations and prior knowledge, eventually evaluating the evidence gathered through experiments
.

Curriculum mapping consists of two levels, namely map level and lesson level. The map level ensures that the teachers and school heads take a closer look at the entire yearly curriculum in order to find out which units or themes will allow inquiry, analysis, debates, case studies, or problem-solving tasks. Teachers have to translate lesson level plans into classrooms through designing activities, questions discussion, and reflective tasks which will promote deep thinking in the duration of a single class period. All in all, the implementation at map level and lesson level together tactically and as well as insightfully ensures that critical thinking is integrated day-to-day in the school curriculum, ensuring progression from foundational to advanced thinking skills.

CURRICULUM MAPPING

MAP LEVEL
Big picture planning

Review yearly curriculum

☑ Review yearly curriculum

Identify Inquiry & Analysis Themes

Select units & Activities

LESSON LEVEL
Classroom implementation

Design discussion & question

Create activities & tasks

Promote reflection & deep thinking

Foundational skills ➡ Analytical skills ➡ Advanced Thinking

**Fill in the blanks with the appropriate words:
(strategies, methods, outcomes)**

Curriculum mapping ensures alignment between :
- **Learning** _____
- **Teaching** _____
- **Assessment** _____

Q
A

1.2.2 Critical Thinking Enriched Curriculum

School heads need to lead teachers to utilise higher order action verbs when framing learning outcomes. Other than outcomes that require students to "remember" or "list," teachers need to frame outcomes that get students to analyse information, evaluate arguments, interpret data, justify decisions, or create solutions. These verbs help in learning to generate shifts from rote memorisation to meaningful mental participation effortlessly. The critical thinking learning outcomes of the students can be measured with rubrics, peer review, problem solving exercises and case studies. Group work and collaborative learning also help in developing stronger reasoning through discussions and debates.

Task:

Change this outcome mentally:

"Students will list the causes of an untidy classroom."

Students will _____ the causes of an untidy classroom.

Understand · **Describe** · **Identify**

Explain · **Analyze** · **Determine** · **Evaluate**

CASE STUDY

Setting up a garden in School.

Mr Ruben Basumatary teacher at Jyoti Ram High School, located in Maligaon town of Kamrup (M) asked the students of class VIII, "How can we build a small, eco-friendly garden that everyone can learn from?" A student raised her hand, "We can grow plants that need less water and attract butterflies!" Another added, "We should measure the space first to see how many plants can fit." The teacher encouraged them by saying , "Think about sunlight, soil type, and water .How will you calculate what's needed?" The students used mathematics to measure the area and predict water usage while using science to choose plants which could do well in the climate of their area.

The students during their art session, drafted designs of gardens and coloured plants along with labels and awareness posters. One student said, "We can write a proposal to the school head requesting for seeds and tools," this integrates the language aspect into the project. Another student said, "Community gardens in our town help people in learning about the environment, nature and its sustainability," and this includes the component of social studies into the project. The students debated on which is the best option. Further they solved some operational challenges and took informed decisions, exhibiting critical thinking by incorporating practical applications of the project. Finally, they presented a comprehensive plan that combined creativity, knowledge, and reasoning, showcasing how different subjects can connect and solve a practical problem.

1.3 EXPERIENCE , EXPERIMENT AND EXCEL

This century of critical thinking compels to transcend conventional teacher-centred practices to creating classrooms that encourage questioning, exploration, experimentation, and reflective practices. Inquiry-based, experiential and interactive learning environments within the classroom uplift student's capacity to explore complex real-world challenges, weigh a range of viewpoints and arrive at well-reasoned evidence backed conclusions. These approaches denoting its role as an effective catalyst helps students to relate classroom concepts to authentic situations cultivating higher order thinking abilities. Promotion of inquiry-based learning empowers teachers to design open-ended tasks, project-based opportunities, investigations and hands-on activities that connect to real-life experiences. Intentional scaffolding and reflective teaching methods help students to evolve from passive learning to meaning-rich knowledge creation.

This section provides school leaders research-informed perspectives, hands-on planning frameworks, and illustrative examples to design dynamic learning experiences, the pedagogy of learning by doing and inquiry- based learning experiences that fosters robust analytical, innovative and meta cognitive abilities within the classroom environment

Fill in the Blanks :

- Experiential learning requires students to engage ,_____, _____ and _____.
- Inquiry-based learning shifts students from _____ learners to _____ creators.

1.3.1 Inquiry based learning:

It is a pedagogy that prioritises learners autonomy enabling them to construct conceptual understanding by exploring multiple avenues for resolution assessing information and forming well substantiated assessments. The types of inquiry-based learning include structured, guided and open inquiry. Teachers must gradually shift from structured to open enquiry based on students' readiness.

Progression of Inquiry-based learning through diagram:

Structured Inquiry

↓

Guided Inquiry

↓

Open Inquiry

↓

Increasing Student Autonomy →
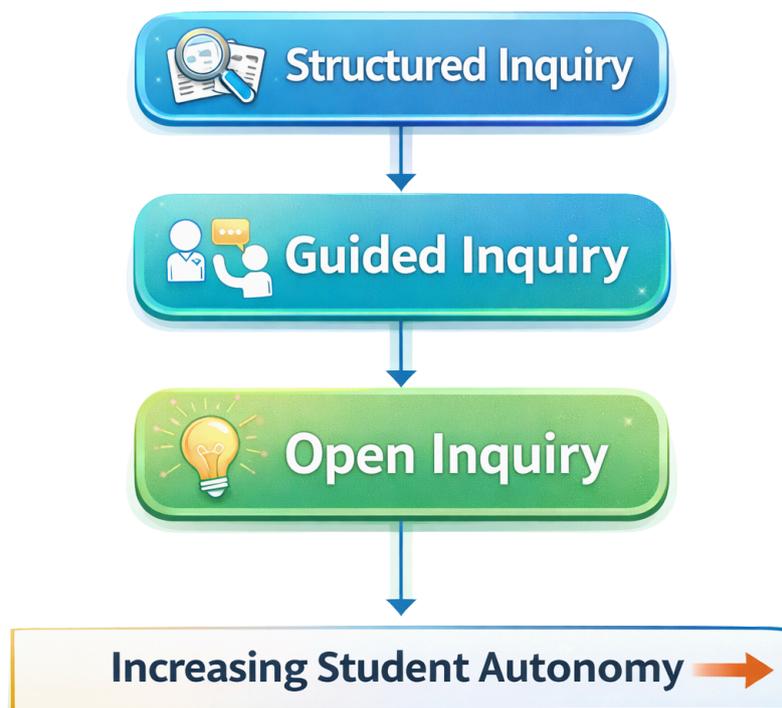
While designing experiential and interactive learning activities there must be authenticity in the tasks where real life scenarios must be provided to the students so that they can relate or observe in their surroundings.They must engage physically, cognitively, socially, emotionally and not act as passive audience . And must reflect on what they did, why they did it, and how they can improve.Collaborative interaction stimulates communication, exchange of ideas, construction of arguments , and different perspectives .In addition , teachers must act as a facilitator by prompting, scaffolding, questioning and not providing answers outright

1.3.2 Step Wise Framework for School Heads :

To begin with it is important to identify a concept and the real life context and frame an inquiry question which must be open ended and must encourage investigation and most importantly connect concepts with real life application.

Furthermore,investigative tasks experiments or field activities must be planned followed by collaboration , discussion , reflection and documentation must be ensured.Finally, its application and problem solving must be reinforced.

1.3.3 School Head in Institutionalising :

Students clubs must be set up for science, debate and environment with enquiry driven assemblies.Students projects must be showcased and questions must be crowdsourced from students encouraging teachers to use socratic questioning.

WHAT CREATES A RAINBOW?

Students of Class VII were participating in morning outdoor activities in the premises of RKB High School, located in the Changsari town of Kamrup (R), when one interesting phenomenon attracted their attention. They observed the reflection of beautiful rainbow patterns near the garden sprinkler. Curious, students asked, **"Why do we observe rainbow colours near the water spray?"** The teacher, **Ms. Pari Baruah** recognised this as an excellent opportunity for inquiry-based, experiential learning and framed the problem for the class "How do light and water interact to create rainbows? Can you recreate and explain this phenomenon?"

They were divided into small groups and provided with water sprays, mirrors, white paper, prisms, and access to sunlight. Following step-by-step guidance from the teacher, they observed the formation of a rainbow, observing colours and the sequence followed by them. The focus at this stage was familiarisation: a stage where observations are made and results recorded and no deep exploration is done. Each group was motivated to explore the variations independently. Students sprayed water at various angles, checked refraction of light through prisms and mirrors, and watched the formation of a rainbow on white paper. They developed questions, made a prediction, and discussed hypotheses, such as **"Will the rainbow appear if the sun rays are blocked? Does the angle of spraying change the size of the rainbow? Can we create rainbows using a glass of water?"** Students modified the set-up as per observations made, noting patterns of colour, order, shape, and visibility. Ms. Pari Baruah guided discussions as students thought about the behaviour of light without her giving away all the answers. Students generated questions such as **"Can we create a rainbow indoors using artificial light? What would happen if coloured water instead of transparent water was used?"** Students interpreted the results, drew inferences, and presented their findings to the class. They concluded that rainbows form due to the refraction, reflection, and dispersion of light in water droplets, and angles of sunlight and size of droplets are the factors affecting visibility.

In this way, this activity developed collaboration, critical thinking, observation, reasoning, and reflection. It gave the opportunity for students to practically explore a rather abstract topic like light and optics. This will surely make learning easier and more meaningful. As Ms. Pari Baruah concluded, interactive, inquiry-based experiments make the concepts of science meaningful and interesting for the children.

How frequently do students in your school engage in meaningful investigation rather than repetitive classwork?

How can school heads support teachers to shift from lecture method to enquiry facilitation?

Are students evaluated based on how they think, evaluate and investigate rather than just accuracy of responses?

Tick ✅ if True in Your School :

☐ Students investigate more than memorise.
☐ Teachers ask "why" more than "what".
☐ Assessment values thinking.

1.4 ONE VISION, ONE CLASSROOM AND MANY HANDS:

The collaborative approach to teaching-learning methods is harnessed around shared responsibility, co-planning, and conducting learning experiences jointly. Teachers in today's learner-centred education system have to collaborate in their professional work to establish inquiry-driven, dynamic, and inclusive classes.

Whenever teachers co-teach, peer coach, plan lessons together, or work on projects with their colleagues in other disciplines, they provide the students with a model of teamwork in action and help develop a culture of collective problem-solving. For school heads, fostering collaborative teaching-learning is a means to strategic leadership at school through reinforcing professional relations among teachers, improving the quality of instruction, and building a reflective environment in school.

Collaborative approaches help move schools away from isolated classroom practices and toward a system where educators support and learn from one another continuously. This makes for richer lessons, more varied perspectives, and more innovative learning opportunities for the kids. Effective implementation on the part of school leaders requires thoughtful structures that are supported by enabling policies and a culture valuing shared expertise.

Connect Concepts to Real-Life Application

1.4.1 Systematically Organised Collaborative Culture in School:

Collaborative teaching must be a routine part rather than an occasional activity in the school. Professional Learning Communities, grade level teams, subject groups and scheduled collaborative planning time must be included in the school timetable. Joint lesson planning, co creating teaching-learning materials TLMs, developing common assessments and using shared digital platforms for resource sharing.

Teachers must feel free to articulate challenges and ideas within a psychologically safe space.The school head must cultivate a culture of mutual trust and acknowledge team achievements.Pedagogical activities such as interdisciplinary work, theme-based events and integrated approaches must be endorsed.

1.4.2 Collaborative Classroom Practices:

Co-teaching models such as team teaching, one teach–one assist, parallel teaching, and station teaching to ensure diverse instructional support for students. Implementing organised classroom observation , mentoring, and iterative feedback helps teachers to strengthen their teaching strategies in a classroom .

ACTIVITY :

Collaboration Bingo

Mark what already exists in your school:

- ☑ Peer observation
- ☑ Interdisciplinary projects
- ☑ Joint lesson planning
- ☑ Professional learning communities
- ☐ One missing element: _____

CASE STUDY

SYNERGY TOWARDS CLEANLINESS IN THE SCHOOL ENVIRONMENT

During recess, Saneki Boro, a student of Class V at Karara Primary School located in Kamrup (R), noticed litter around the school playground and reported the issue to her class teacher, Ms Disha Gogoi. The teacher used this as an opportunity to introduce a joint learning experience for the students.

She assembled the class and asked, **"Why do you all think our school playground is getting dirty?"** One student said, "**Ma'am, due to careless disposal of chips and chocolate wrappers."** Another student said, **"Ma'am, it gets overcrowded during break time."**

Ms Disha Gogoi replied, **"Let's work together as a team, analyse the problem, and make our school clean."**

The students were divided into small groups, namely the survey group, awareness group, cleaning group, and data-keeping group. All the groups observed, planned, discussed, and carried out the cleanup activity. They also made posters highlighting why it is important to keep the surroundings clean.

Through this collaborative group activity students develop team-work, cooperation , responsibility,communication and problem-solving skills . And above all the playground became cleaner.

Reflections

- How can you make sure that the critical thinking outcomes are integrated into all the subjects?

- What strategies can you implement to encourage students to analyse, evaluate and synthesise information in every lesson?

- How can you assess critical thinking in the students making sure that these assessments accurately reflect higher order thinking skills?

- What opportunities are you creating for the students to connect classroom concepts with real life situations?

- What changes can you make in the teaching approach to welcome diverse viewpoints in the classroom?

1.5 SUMMARY

Education for critical thinking is alll about shifting focus from rote learning to deeper understanding and application of concepts.By inculcating habits of curiosity, open-mindedness, problem solving skills, self-reflection, adaptability,in the learners life-long learning takes place . Critical thinking encourages students to question and challenge assumptions so that they become independent thinkers . Reflection of past experiences is beneficial for the learners so that the valuable insights from their prior knowledge makes it easier for them to tackle complex challenges. It assists the learners to deal with real-life problems with resilience and positive mindset.And influences them to develop tolerance towards each other by acknowledging diverse perspectives. Critical thinking boosts confidence in the learners and fortifies self-awareness in them contributing to the overall development of their personality.

Critical thinking not only strengthens emotional intelligence but it also has a positive influence in society. It aids the future innovators so that they become responsible citizens and work towards the betterment of the nation with fairness and dedication.

1.6 REFERENCES

1. Facione, P. A. (2015). Critical Thinking: What It Is and Why It Counts. Insight Assessment.
2. Brookfield, S. (2012). Teaching for Critical Thinking: Tools and Techniques to Help Students Question Their Assumptions. Jossey-Bass.
3. Kauchak, D., & Eggen, P. (2017). Introduction to Teaching: Becoming a Professional. Pearson.
4. Eggen, P., & Kauchak, D. (2019). Educational Psychology: Windows on Classrooms. Pearson.
5. Marzano, R. J. (2001). Classroom Instruction That Works: Research-Based Strategies for Increasing Student Achievement. ASCD.
6. NCERT (2005). National Curriculum Framework (NCF). NCERT.
7. NCERT (2023). National Curriculum Framework for School Education (NCF-SE). NCERT.
8. Ministry of Education (2020). National Education Policy 2020. Government of India.

- The school curriculum should focus on promoting students' ability to question, analyse and justify ideas rather than rote memorisation.

  TRUE **FALSE**

- Interdisciplinary learning promotes solving real-life problems by integrating science, mathematics, social sciences and language.

  TRUE **FALSE**

- Inquiry-based learning enables learners to learn by questioning, investigating and hands-on experiences.

  TRUE **FALSE**

- Encouraging students to justify answers with evidence is a way of encouraging higher-order thinking skills.

  TRUE **FALSE**

- This module aims to facilitate shifting from student-centred learning methods to traditional lecture-based methods.

  TRUE **FALSE**

Final Thought

- **ONE IDEA THAT YOU LOVED:**

- **ONE IDEA THAT YOU'LL TRY IMMEDIATELY:**

1.8 ADDITIONAL READINGS:

1. Paul ,R.,& Elder, L. 2014.(The Miniature Guide to Critical Thinking :Concepts and Tools. Foundation for Critical Thinking.
2. Hmelo-Silver,C.E.(2004).Problem-Based Learning: What and How Do Students Learn? Routledg
3. Bransford, J.D.,Brown, A.L.,&Cocking, R.R.(2000).How People Learn: Brain, Mind, Experience,and School. National Academy Press.
4. Fogarty,R.(1991).The Mindful School: How to Integrate the Curricula. IRI/Skylight Publishing.

AUTHOR PROFILE

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Hemashree Baruah is an Assistant Teacher at Sindurighopa Lower Primary School, Kamrup, Assam, with a deep-rooted commitment to improving foundational educational standards through a culture of Socratic questioning, reflective reasoning , inquiry-based design and collaborative learning that nurtures holistic and insightful education.

With practical classroom experience in primary education, she actively promotes child-centred , experiential and reflective classroom practices aligned with NEP 2020. Her professional orientation is toward guided inquiry, Socratic questioning, curriculum integration, and collaborative school culture. . Her teaching paradigm centres on building academic spaces that cultivate inquiry-driven and intellectually stimulating classroom environments.