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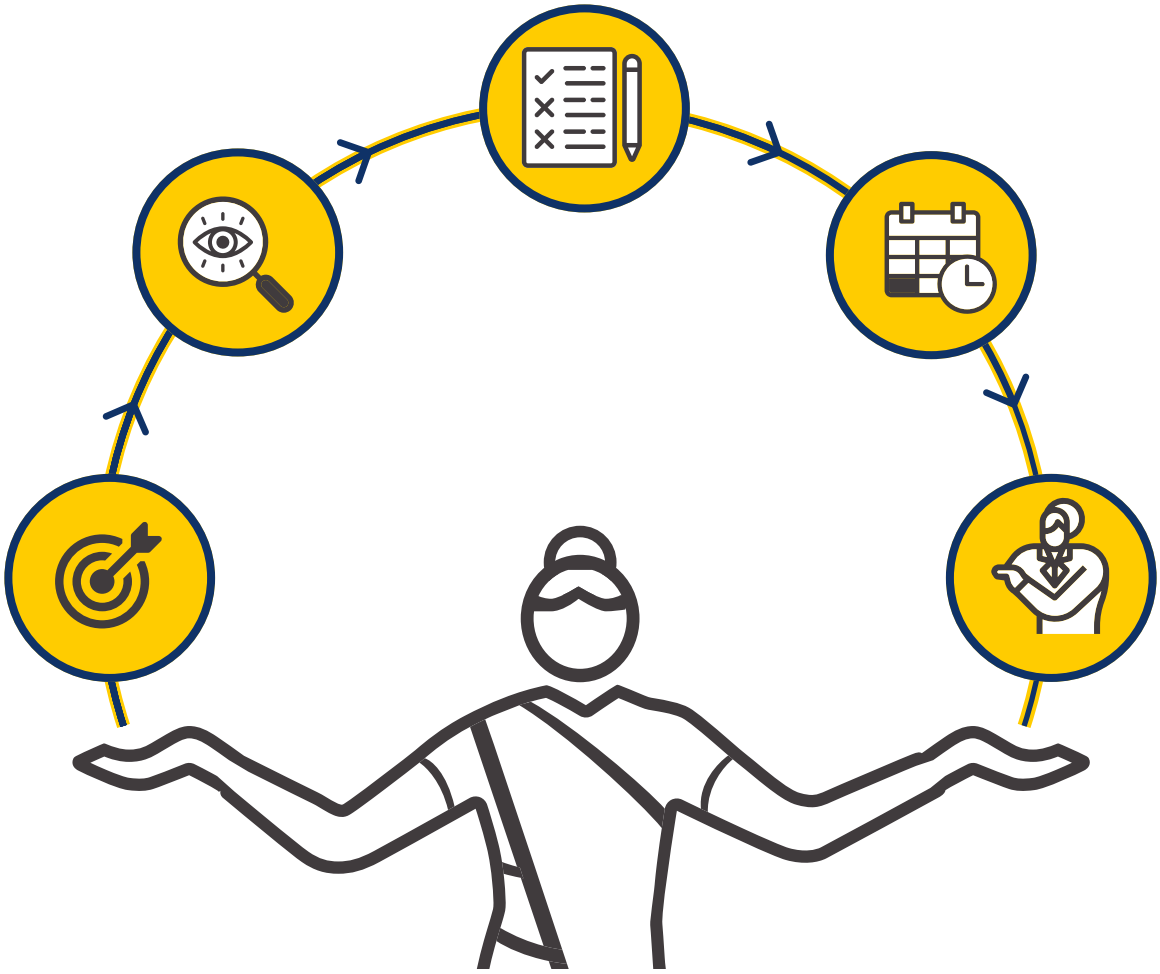

Practitioner's Guide to Embedding Assessment-Informed Instruction (A-i-i) in the Classroom

Thought Partners

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better purpose

Funda Wande
Reading for Meaning

Inspiring Teachers

LLF Language and Learning foundation
Strong Foundation, Stronger Future

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Ministry of Education
Republic of Liberia

Tusome
AFRICA

USAID
FROM THE AMERICAN PEOPLE

Vikramshila

WORLD BANK GROUP
Education

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ABOUT THE ORGANISATIONS

www.centralsquarefoundation.org

Central Square Foundation (CSF) is a non-profit organization working towards ensuring quality school education for all children in India. Since 2012, CSF has partnered with the government, non-profit organisations, and other ecosystem stakeholders to improve the learning outcomes of children, especially from vulnerable populations. CSF is driven by its mission to enable the school education system to adopt solutions that are scalable, sustainable and effective so that all children get equal access to opportunities needed for leading a better life.

www.rti.org

The International Education Division (IED) of the International Development Group at RTI International uses evidence-based approaches to strengthen education policy, management, and practice at every level—from classrooms to national ministries—to achieve measurable improvement in education quality and, ultimately, learning outcomes. For more information see: http://www.rti.org/practice-area/international-education.

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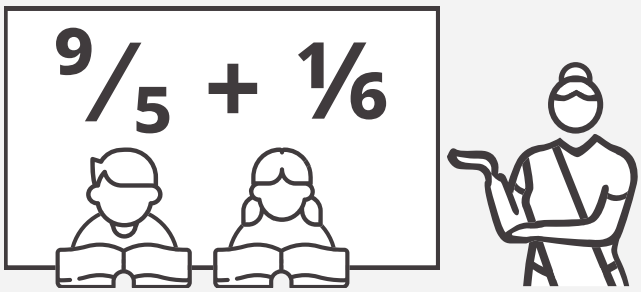
INTRODUCTION TO A-i-i

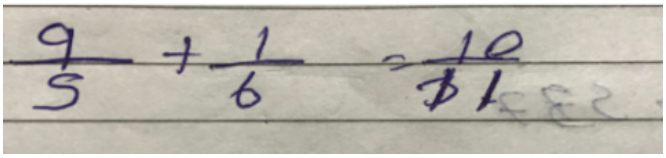
OVERVIEW

Have you ever visited a doctor who prescribed medicines without gathering information about your symptoms? Or a doctor who is unsure which medicine to prescribe at what stage of the treatment? I am sure you have not! The continuous process of information gathering, integration, and interpretation to understand a patient's health problem is a core component of diagnosis in health care.[1] However, the science of teaching is not as straightforward as the science of medicine. A critical missing link is an assessment-informed instruction (A-i-i) approach, a scientific, evidence-based, learner-centered approach to identify "where students are" and "how best to move them to their intended destination."[2] Using assessment to inform instruction provides timely information on individual students' learning progress, which helps teachers chalk out steps to support learners.[3]

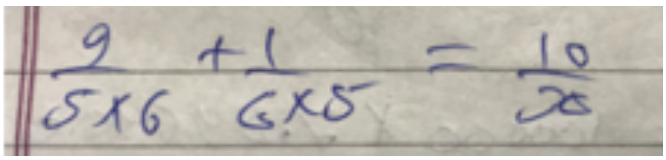


Meet S, a Grade 9 teacher in Delhi. She taught — "addition of unlike fractions" to both Sahil & Gopi. To check for their understanding, S gave them a question to solve on today's topic → Solve: $^{9}/_{5}$ + 1/6

Example of A-i-i in the Classroom



Sahil thinks that when adding two fractions, numerators & denominators can be added separately



Gopi learnt how to make denominators equal. However, misses making the numerators equivalent.

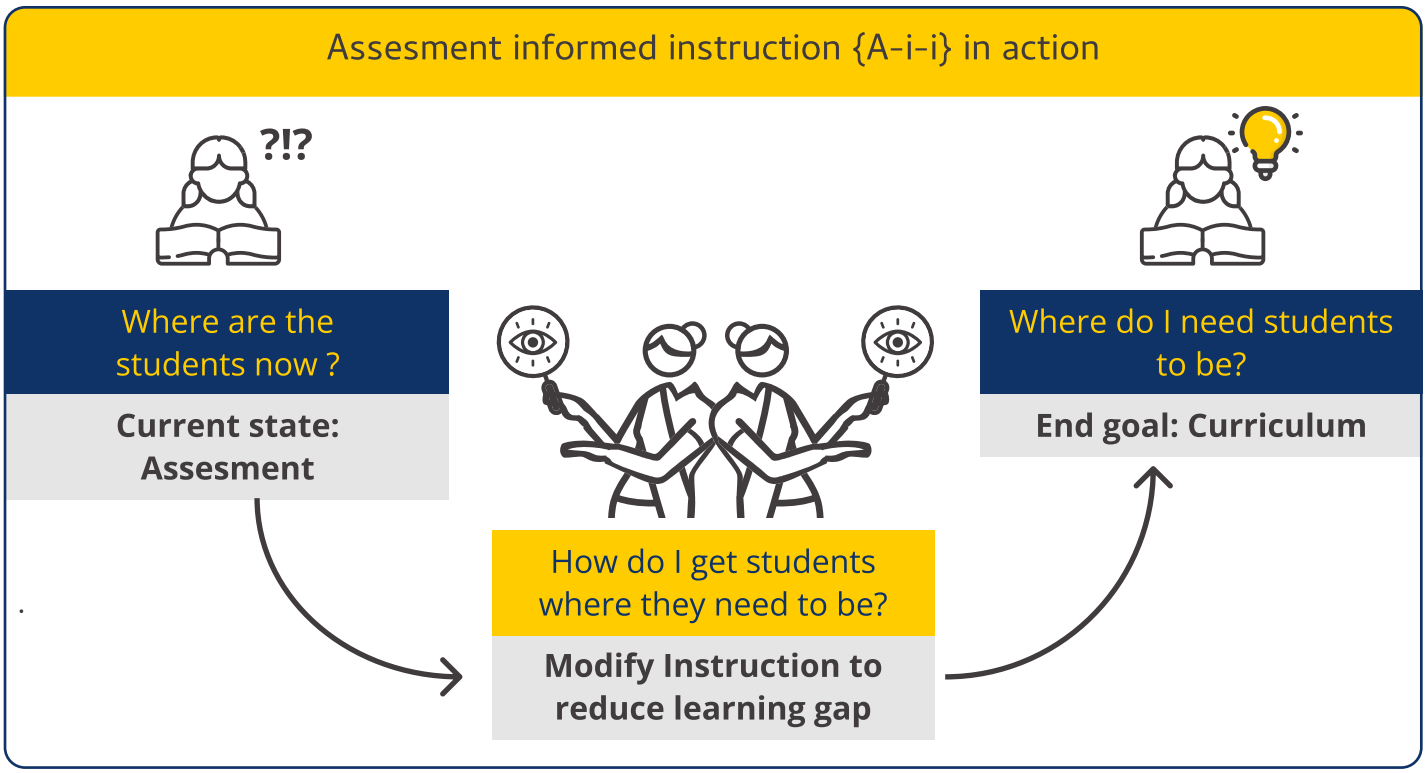
After identifying the learning gaps, teacher S planned specific remedial activities to bridge Sahil's and Gopi's misconceptions on learning fractions.

Quick-check of what's working well & where support is required for students helped teacher S to quickly bridge the learning gap between required skills vs acquired misconceptions.

Evidence of Assessment-Informed Instruction (A-i-i) has been substantially prevalent throughout the literature from the early 90s under fragmented terminologies. Case in point, Black and Williams demonstrated the need to design an approach that uses assessments to modify instruction so that teachers gain evidence about students' capabilities and uses this evidence to adjust instruction to meet the students' learning needs.[4] In addition, RTI's Science of Teaching Guide defines A-i-i as the modification of teaching & learning activities by teachers to support struggling learners in the classroom.[5]

Now, from a practitioner's point of view, this guide views A-i-i as a "*continuous process of using various forms of assessment strategies to inform teaching & learning practices that require teachers' to draw insights from learning data and integrate it into instructional decision-making*." Note that the 'learning data' does not always mean data in the spreadsheet but can be as simple as observed work or student response to questions

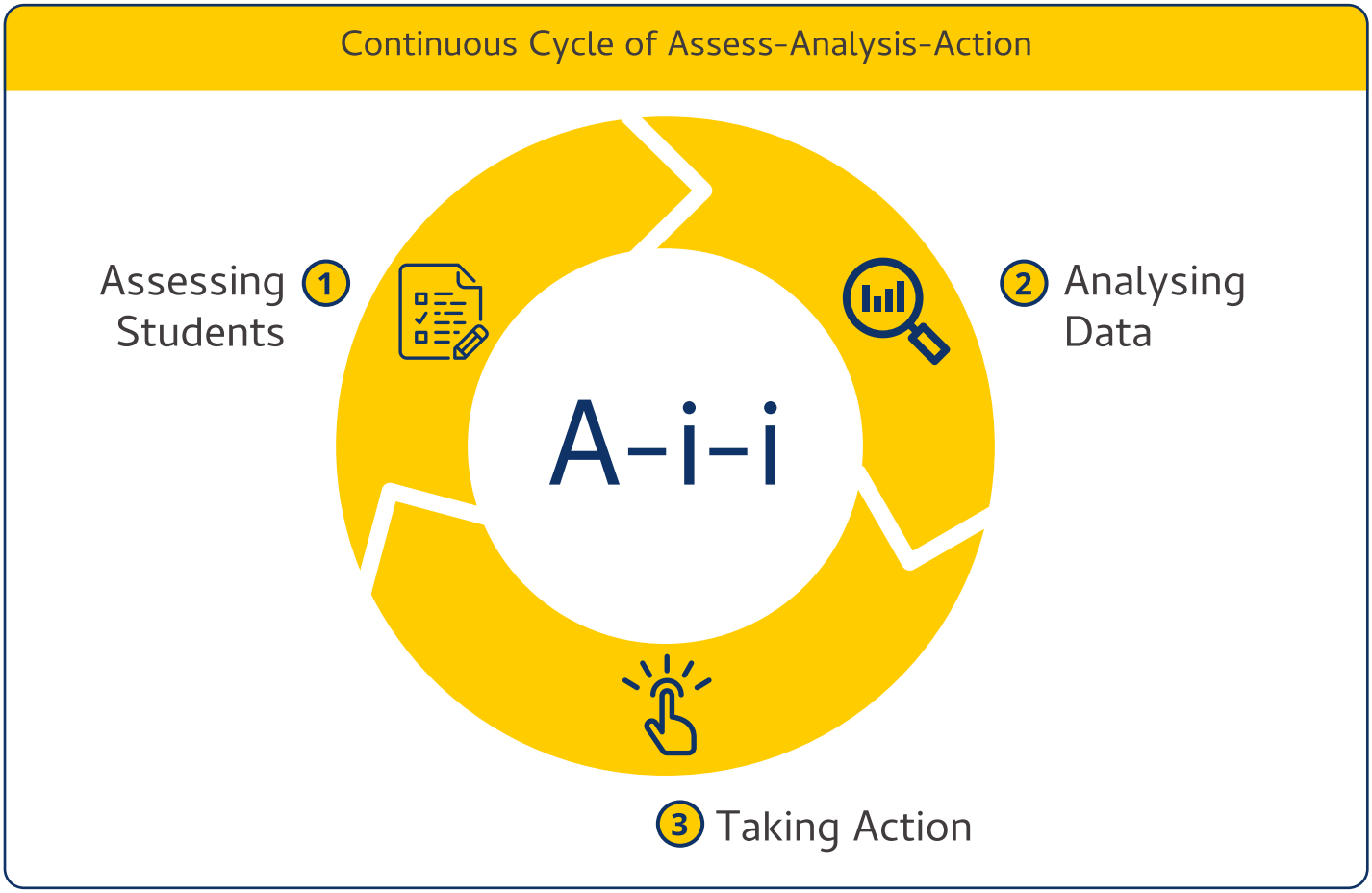
In a classroom where a teacher uses A-i-i effectively, the gap between students' understanding and the teacher's teaching is continuously assessed and closed. Resultantly, the teacher can target instruction to support individual learners and use their understanding of each student's learning progress to allocate tasks, thereby maximizing the value of instructional keeping.



Although the central actor to drive A-i-i in the classroom is the teacher—fidelity to implementation of A-i-i depends on how well the teacher is supported by education practitioners in the system—headteachers, trainers, coaches, curriculum developers, program implementers, policymakers, and government.[6]

When trying to move students towards the intended learning goals, teachers often don't have the time, tools, and capabilities to continuously understand the current learning level of all students and tailor their support accordingly, and so many children get left behind.[7]

To use assessment-informed instruction effectively, teachers need to have a clear schema for the body of knowledge and the skills that they intend for students to develop — then, the teacher needs strategies that enable them to check students' understanding and abilities during the instruction process.[8] Finally, the teacher needs ways to respond and adapt their instruction based on the insights they gather through continuous assessment.



1 Assessing Students

In the classroom, teachers continually collect information about what students know & where they are in relation to the intended learning goals

2 Analysing Data

Teachers use information from student answers, and their knowledge to indetify students' next step towards learning goals.

3 Taking Action

Teachers adapt the lesson in the mometn, or plan future activities that support learners to reach the learning goals.

SCOPE OF THIS GUIDE

This guide is an attempt to answer: "How can education practitioners support teachers to use assessment-informed instruction to improve learning in their classrooms?"

The use-case of A-i-i is evident from the 1990s and 2000s in higher-income countries; it is only today that the low-and-middle-income countries are trying to develop a systemic approach that is time-efficient, easy to administer, and can be applied in low-resource settings. Additionally, the approach must provide helpful information that teachers can use when planning lessons and targeting support to students.[9]

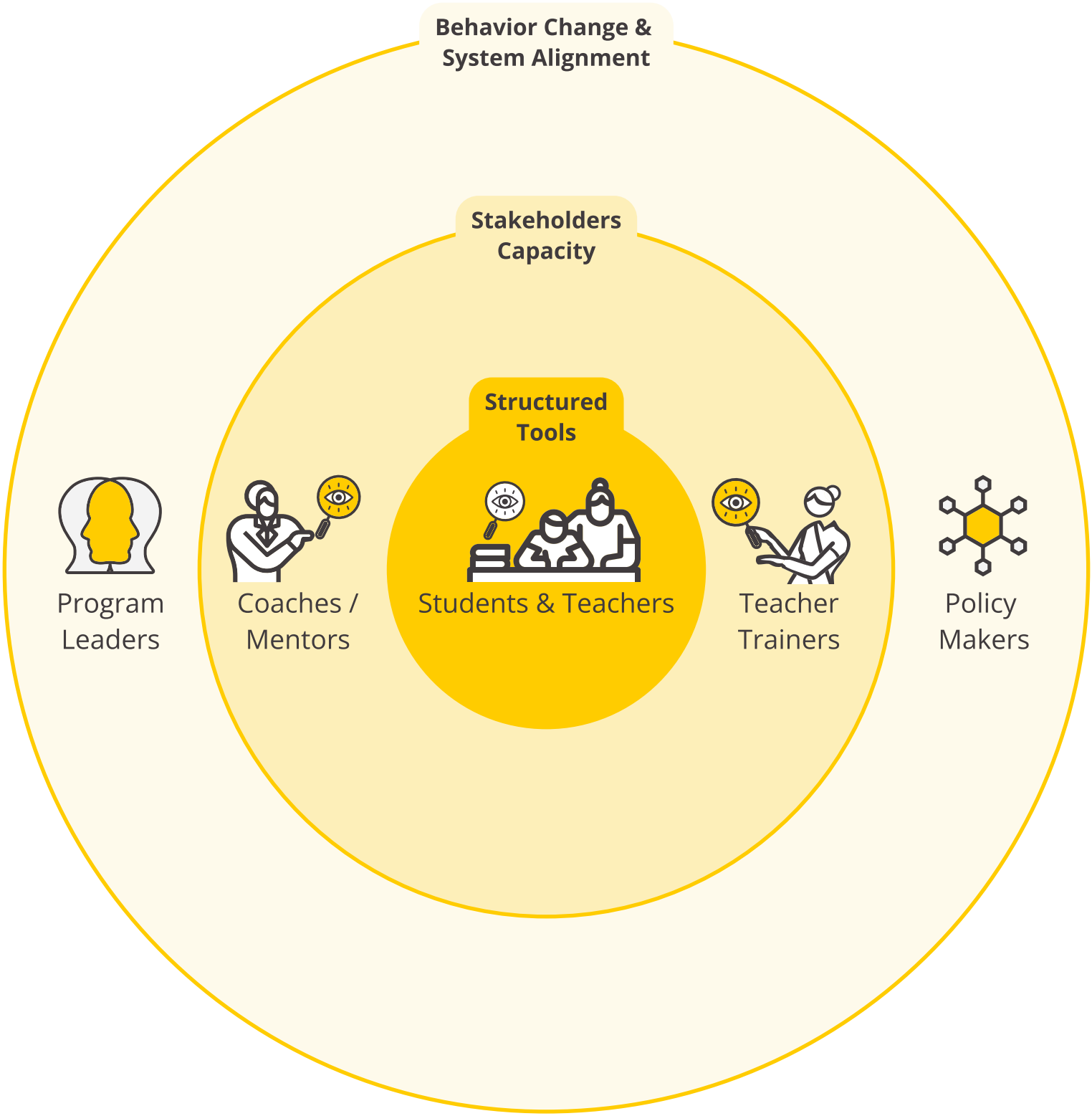
Today, there is extensive evidence on various elements of A-i-i interventions available across the world. For instance, Pratham's teaching at the right level approach in Africa[10], Tusome's structured teacher guides and lesson plans in Kenya[11], Room to Read[12], and Chemonics LEGRA scale-up approach on formative reading assessment in Rwanda, RTI International's Tangerine: teach phone and tablet-based classroom assessment tool[13], and finally, India's LLF in Haryana showcasing a weekly instructional routine. In addition, there is extensive literature available in the form of RTI-BMGF's two guides on A-i-i, which captures lessons at both the classroom and system levels.[5]

Practitioner's guide to embedding Assessment-Informed Instruction (A-i-i)—a guide designed through a practitioner's lens serves as a last-mile solution for education stakeholders making a unique contribution to this critical global agenda.

> **Building on RTI-BMGF's extensive literature on A-i-i, in this guide, Central Square Foundation has identified four essential pillars that contribute to the program's success in embedding A-i-i: (i) structured tools, (ii) stakeholder capacity, (iii) behavior change & adoption, and (iv) system alignment.**

This guide presents step-by-step recommendations, guidance on applying each of the suggested recommendations, and summary of best practices/evidence of the recommendations.

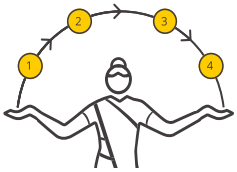
Framework: Embedding A-i-i in Program Design



While the heart of the solution to successfully embed A-i-i in the classroom is to support the students & teachers, in order to create successfully A-i-i enabled system - support from practitioners is required at all levels. The journey starts from a teacher to use assessment to inform instruction that improves the quality of teaching and learning, brings accountability in the students. Any teacher who wants to implement any A-i-i pillar, there needs to be quality training or ongoing teacher support by the teacher coaches or mentors. Any aspects of education system leadership that are instrumental to improving A-i-i requires strong program and policy design for the practitioners.

What happens in an A-i-i enabled clasroom system ?

TEACHERS ARE EQUIPPED WITH STRUCTRED TOOLS THAT INTEGRATE...



A pedagogical routine to integrate A-i-i at multiple stages of instruction

Recommendation 1a

Simple techniques to make real-time decisions based on students' responses

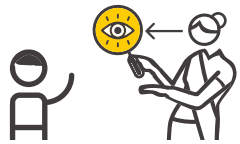
Recommendation 1b

STRUCTURED TOOLS

IN TRAININGS, TEACHERS LEARN...

What is A-i-i, its purpose and how to implement it

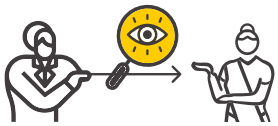
Recommendation 2a



Practice simple classroom assessment strategies

Recommendation 2b

ACADEMIC CADRE CAN STRENGTHEN SUPPORT FOR TEACHERS BY...



Coaches to gradually release A-i-i support to teachers

Recommendation 3a

Tightly knit TLMs, and academic support with teacher training

Recommendation 3b

STAKEHOLDER CAPACITY

DRIVING ADOPTION & USAGE OF A-i-i IN CLASSROOM IS ENABLED BY...

Allocating time at a weekly/or daily level for assessment & remediation

Recommendation 4a

Establishing structures to ensure regular practice & feedback on A-i-i

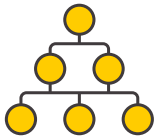
Recommendation 4b

BEHAVIOUR CHANGE & ADOPTION

CLEAR LINKAGE B/W ASSESSMENTS, INSTRUCTION & CURRICULUM BY...

A learning outcome framework (LOF) that maps the 'micro-steps' of learning

Recommendation 5a



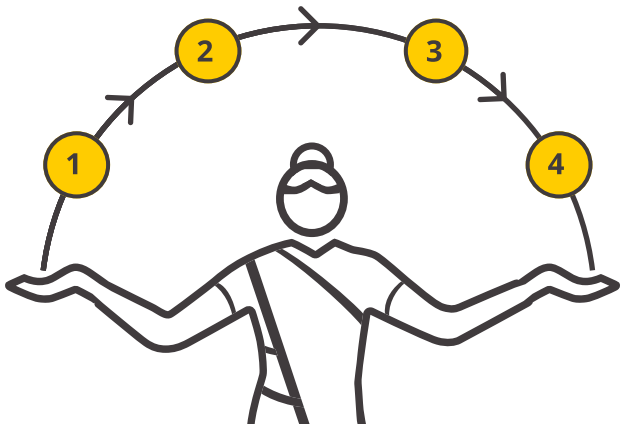
Building coherence in assessments from the state to classroom level.

Recommendation 5b

SYSTEM ALIGNMENT

Embed A-i-i in Teaching-Learning Materials (TLMs)

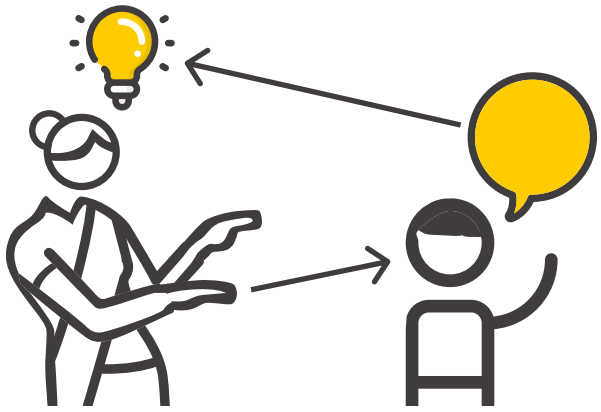
A-i-i requires teachers to identify students' learning needs and make instructional decisions to support student learning.[14] Hence, the most fundamental support to teachers is to provide the instructional tools that have checkpoints within a lesson to check for students' understanding and suggestions to make real-time instruction decisions based on students' responses.[15]



Recommendation 1a

Step-by-step pedagogical routine to integrate A-i-i at various stages of instruction

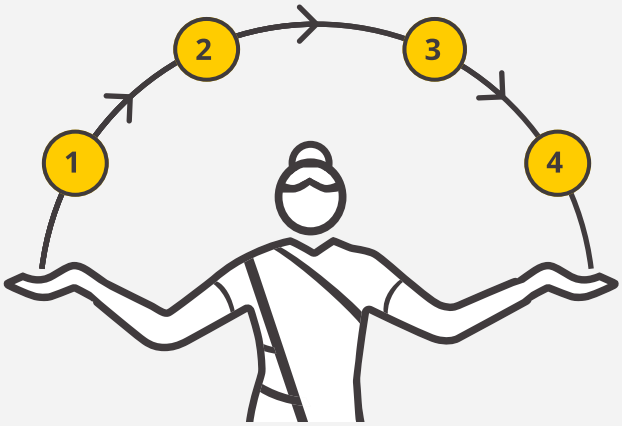
Learn More ⟶



Recommendation 1b

Simple assesment techniques to help teachers make real-time decisions based on students' responses

Learn More ⟶



Step-by-step Pedagogical Routine to integrate A-i-i at various stages of instruction

Practitioners developing TLMs must provide a pedagogical routine in the teacher manual to enable teachers to successfully implement A-i-i.[16] An effective lesson plan illustrates how to use student responses before, during, and after instruction to improve the teaching process.[17] The following principle below describes how A-i-i can be integrated at various stages of classroom instruction.

PRINCIPLE

Before Instruction

Identify students' existing knowledge and needs

- Identify students' starting points, challenges and goals
- Plan future instruction activities
- Ensure student needs are met

During Instruction

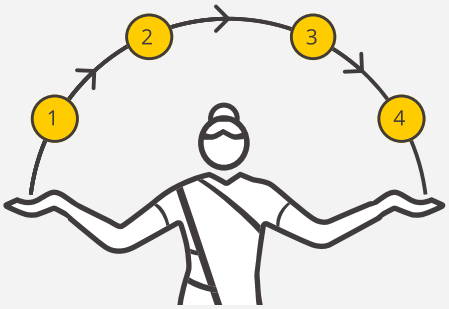
Enable teachers to adapt instruction

- Check students' understanding and adapt instruction
- Track student progress in real-time
- Give students feedback to instantly improve

After Instruction

Help in plannig additional support/future instruction

- Consolidate students' learning and plan next steps
- Analyze students' progress over time
- Evaluate teaching & provision



Step-by-step Pedagogical Routine to integrate A-i-i at various stages of instruction

Features of the numeracy lesson plan developed by Vikramshila that embed assesment based pedagogical routine.[18]

Before Instruction

1 Lesson Goal

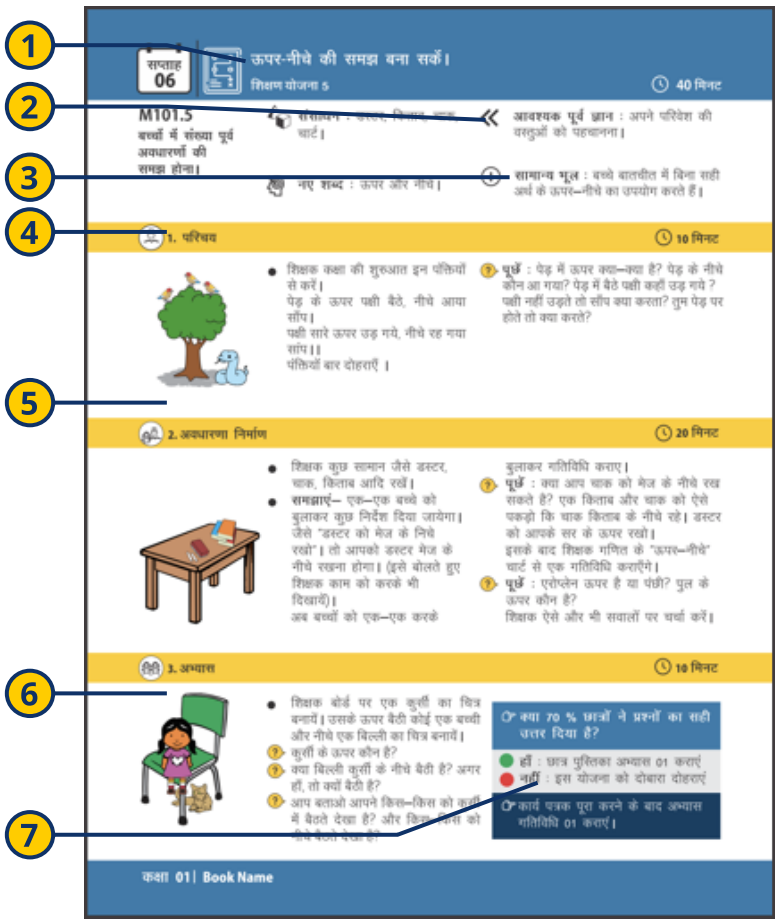
The teacher uses assessment information from the previous lesson to decide on the next appropriate task for the class.

2 Pre-requisite content knowledge

For teachers to check & ensure that all the learners possess the foundational requisite skills for her to build on the new knowledge.

3 Common student misconceptions

Lists down the possible common errors and misconceptions that some student might hold which can make it difficult to access the lesson.



During Instruction

4 Teacher demonstration, i.e., 'I do'

The teacher provides 'direct instruction' of new knowledge/information.

5 Guided practice, i.e., 'We do'

Teachers also provide feedback on students' work and address any misconceptions they may have. Finally, teachers ask questions to gauge student understanding and support them as they proceed.

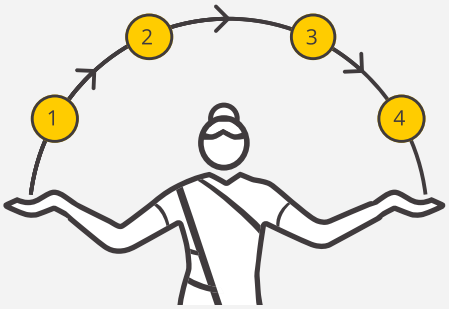
After Instruction

6 Independent practice, i.e., 'You do'

While students practice independently, teachers gather information on student learning and give immediate feedback on errors.

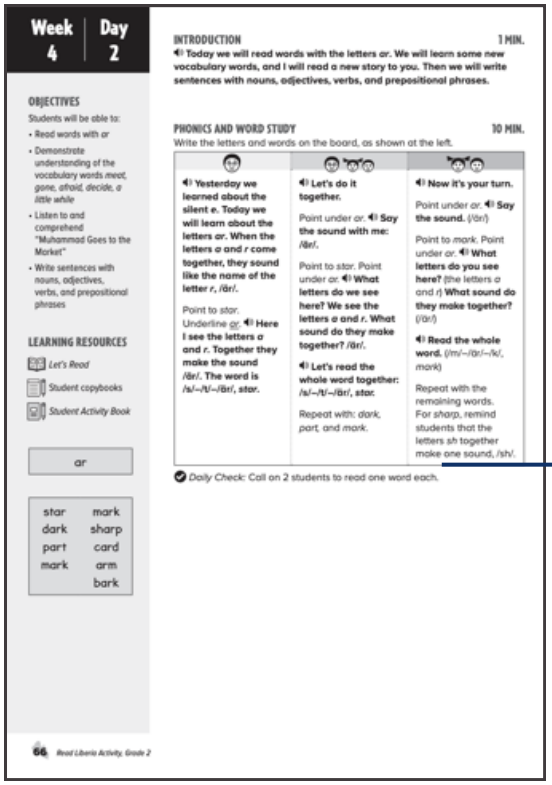
7 Final checkpoint

Decision blocks for teachers to decide the next step in instruction. Teachers proceed to worksheet only if 70% of students answer end-of-lesson question correctly, otherwise, they re-teach the objective of the day.



Step-by-step Pedagogical Routine to integrate A-i-i at various stages of instruction

Read Liberia has an ongoing assessment system that is designed to provide teachers with student data that can be used to diagnose skill gaps & modify classroom instruction.[18]



Week 4 | Day 2

INTRODUCTION 1 MIN.

Today we will read words with the letters *ar*. We will learn some new vocabulary words, and I will read a new story to you. Then we will write sentences with nouns, adjectives, verbs, and prepositional phrases.

PHONICS AND WORD STUDY 10 MIN.

Write the letters and words on the board, as shown at the left.

Yesterday we learned about the silent *e*. Today we will learn about the letters *ar*. When the letters *a* and *r* come together, they sound like the name of the letter *r*, /är/. Point to *star*. Underline *ar*. Here I see the letters *a* and *r*. Together they make the sound /är/. The word is /s/–/t/–/är/, *star*.	Let's do it together. Point under *ar*. Say the sound with me: /är/. Point to *star*. Point under *ar*. What letters do we see here? We see the letters *a* and *r*. What sound do they make together? /är/. Let's read the whole word together: /s/–/t/–/är/, *star*. Repeat with: *dark*, *part*, and *mark*.	Now it's your turn. Point under *ar*. Say the sound. (/är/) Point to *mark*. Point under *ar*. What letters do you see here? (the letters *a* and *r*) What sound do they make together? (/är/) Read the whole word. (/m/–/är/–/k/, *mark*) Repeat with the remaining words. For sharp, remind students that the letters *sh* together make one sound, /sh/.

Daily Check: Call on 2 students to read one word each.

OBJECTIVES

Students will be able to:
- Read words with *ar*
- Demonstrate understanding of the vocabulary words *meat*, *gone*, *afraid*, *decide*, *a little while*
- Listen to and comprehend "Muhammad Goes to the Market"
- Write sentences with nouns, adjectives, verbs, and prepositional phrases

LEARNING RESOURCES

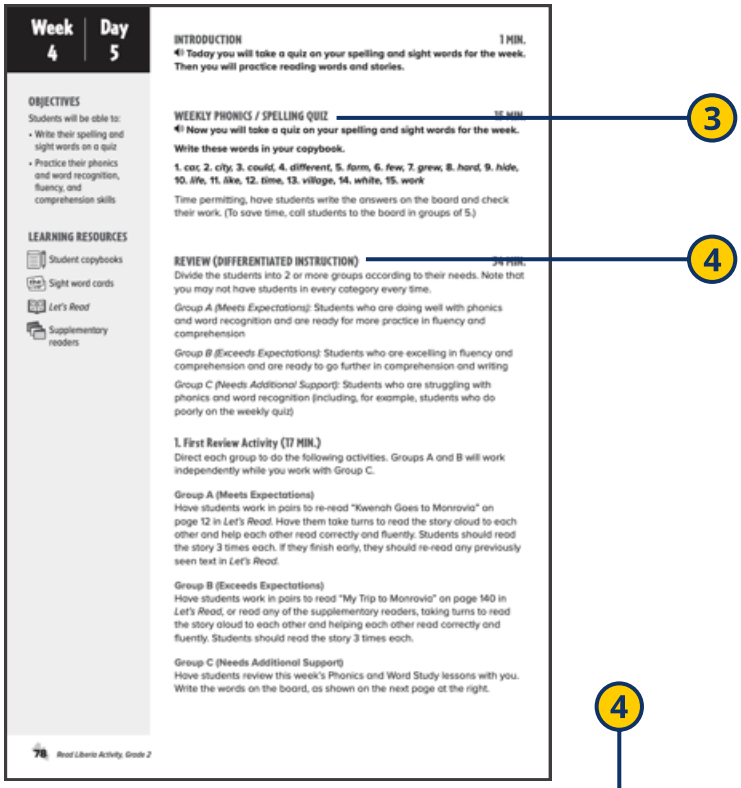
Let's Read
Student copybooks
Student Activity Book

ar

star	mark
dark	sharp
part	card
mark	arm
	bark

66 Read Liberia Activity, Grade 2

1



Week 4 | Day 5

INTRODUCTION 1 MIN.

Today you will take a quiz on your spelling and sight words for the week. Then you will practice reading words and stories.

WEEKLY PHONICS / SPELLING QUIZ 15 MIN.

Now you will take a quiz on your spelling and sight words for the week.

Write these words in your copybook.

1. *car*, 2. *city*, 3. *could*, 4. *different*, 5. *farm*, 6. *few*, 7. *grew*, 8. *hard*, 9. *hide*, 10. *life*, 11. *like*, 12. *time*, 13. *village*, 14. *white*, 15. *work*

Time permitting, have students write the answers on the board and check their work. (To save time, call students to the board in groups of 5.)

REVIEW (DIFFERENTIATED INSTRUCTION) 34 MIN.

Divide the students into 2 or more groups according to their needs. Note that you may not have students in every category every time.

Group A (Meets Expectations): Students who are doing well with phonics and word recognition and are ready for more practice in fluency and comprehension

Group B (Exceeds Expectations): Students who are excelling in fluency and comprehension and are ready to go further in comprehension and writing

Group C (Needs Additional Support): Students who are struggling with phonics and word recognition (including, for example, students who do poorly on the weekly quiz)

1. First Review Activity (17 MIN.)

Direct each group to do the following activities. Groups A and B will work independently while you work with Group C.

Group A (Meets Expectations)
Have students work in pairs to re-read "Kwenah Goes to Monrovia" on page 12 in *Let's Read*. Have them take turns to read the story aloud to each other and help each other read correctly and fluently. Students should read the story 3 times each. If they finish early, they should re-read any previously seen text in *Let's Read*.

Group B (Exceeds Expectations)
Have students work in pairs to read "My Trip to Monrovia" on page 140 in *Let's Read*, or read any of the supplementary readers, taking turns to read the story aloud to each other and helping each other read correctly and fluently. Students should read the story 3 times each.

Group C (Needs Additional Support)
Have students review this week's Phonics and Word Study lessons with you. Write the words on the board, as shown on the next page at the right.

OBJECTIVES

Students will be able to:
- Write their spelling and sight words on a quiz
- Practice their phonics and word recognition, fluency, and comprehension skills

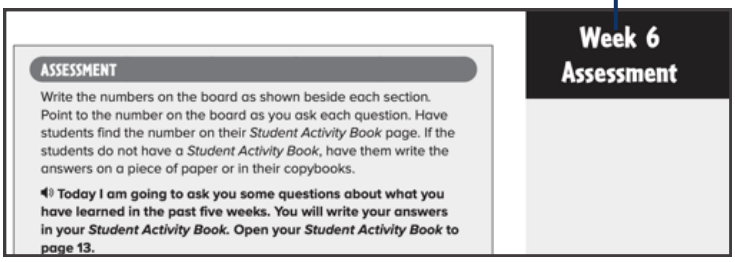
LEARNING RESOURCES

Student copybooks
Sight word cards
Let's Read
Supplementary readers

78 Read Liberia Activity, Grade 2

3

4



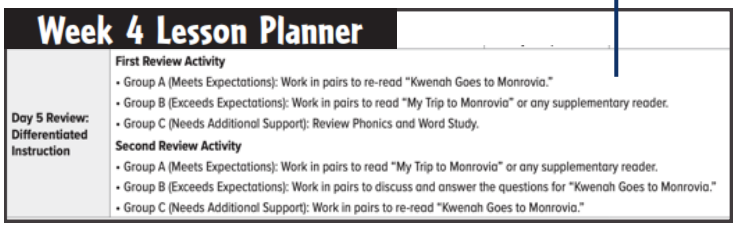
Week 6 Assessment

ASSESSMENT

Write the numbers on the board as shown beside each section. Point to the number on the board as you ask each question. Have students find the number on their *Student Activity Book* page. If the students do not have a *Student Activity Book*, have them write the answers on a piece of paper or in their copybooks.

Today I am going to ask you some questions about what you have learned in the past five weeks. You will write your answers in your *Student Activity Book*. Open your *Student Activity Book* to page 13.

2



Week 4 Lesson Planner

Day 5 Review: Differentiated Instruction	First Review Activity • Group A (Meets Expectations): Work in pairs to re-read "Kwenah Goes to Monrovia." • Group B (Exceeds Expectations): Work in pairs to read "My Trip to Monrovia" or any supplementary reader. • Group C (Needs Additional Support): Review Phonics and Word Study. Second Review Activity • Group A (Meets Expectations): Work in pairs to read "My Trip to Monrovia" or any supplementary reader. • Group B (Exceeds Expectations): Work in pairs to discuss and answer the questions for "Kwenah Goes to Monrovia." • Group C (Needs Additional Support): Work in pairs to re-read "Kwenah Goes to Monrovia."

4

1 Daily Check/ Ongoing Assesment

Observational Assesment Opportunities in each lesson plan to monitor students' mastery of skills.

2 Assesment Checkpoints

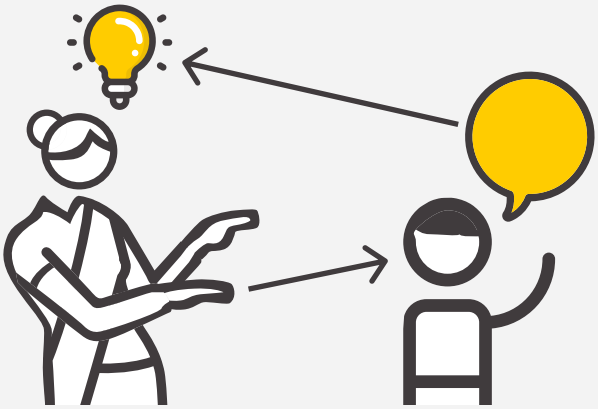
Periodic assessments & timed ORF assessments embedded in lesson plans.

3 Day 5: Review Lessons

Lesson plans begin with spelling and sight word puzzles.

4 Day 5: Differentiated Review

Remediate learning gaps in three groups
Group A - students who meet learning levels
Group B - students who exceed learning levels
Group C - sudents who need additional support

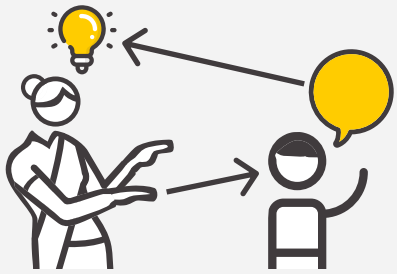


Simple assesment techniques to help teachers make real-time decisions based on students' responses

Practitioners developing TLMs must embed simple classroom assessment techniques to help teacher inform classroom instruction in real-time. The following principles can be used to integrate simple assessment strategies in your current or future lesson plans to make your classroom A-i-i ready.

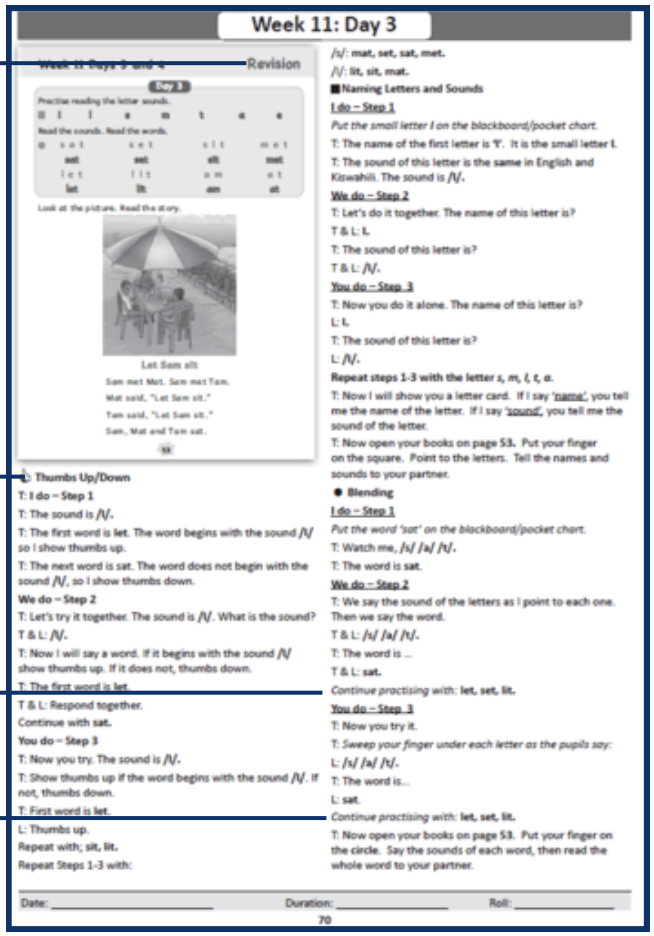
PRINCIPLE

Before Instruction	**Do my students have the required pre-requisite knowledge?**
Recap Question	Quick entry question to check for understanding of previously covered concepts
Decision block for teacher	Based on students response - deciding whether to proceed ahead with teaching the given objective or reteaching the previously covered lesson objective.
During Instruction	**Are students able to follow what I am teaching right now?**
Thumbs-up-Thumbs-down / Classroom Poll	Student's respond to teacher on whether they are able to follow the instruction or need teacher to repeat/clarify concept.
Check for understanding question	Teacher randomly selects 2-3 students and ask simple question related to the instruction to quickly gauge whether student's are understanding or not.
After Instruction	**Plan next steps in intruction based on students' response**
Student Reflection	Prompts for students to reflect and share what they learned today? How confident they are about the given lesson? This serves as feedback for teachers to plan further.
Exit Ticket & decision block	Students independently solve 2-3 questions. Teachers mark students response and decide whether to teach new concept or revise the same lesson.



Simple assesment techniques to help teachers make real-time decisions based on students' responses

Features of the literacy lesson plan developed by Tusome that help teachers to make real-time decisions in response to students.[20]



1 Revision

The day starts with review of question from previous day's lesson.

2 Thumbs Up/Down

Quick check for student's understanding of a concept.

3 Continuous Questioning

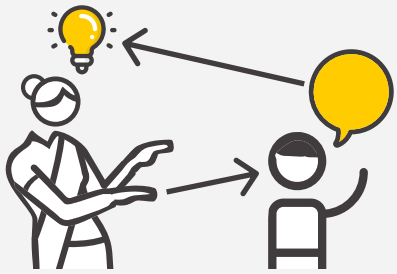
Multiple practice opportunities for students to understand the content and for teachers to support students in case of learning gaps.

4 Partner Practice

Students practice and give feedback by thinking about their partners' (and in turn their own) learning process

5 Decision Block

Decide next steps in instruction based on students' response.



Simple assesment techniques to help teachers make real-time decisions based on students' responses

Best practices for embedding simple clasroom assessment techniques from various programs across the world.

Before Instruction

Basa Pilipinas: Teacher Guide Grade 3 English[21]

Recap question: Linking prior knowledge

PRE-READING ACTIVITIES

a. Linking Prior Knowledge

- Teacher tells pupils that today they will read about what happens to Mr. P.
- Teacher distributes the Leveled Reader *Mr. Particular* and asks pupils to look at the pictures on pages 7 to 10. Teacher asks pupils to describe what they see in the pictures. He or she picks a few pairs to answer the questions.

Recap question: Revise concepts previous lessons

Review Words

Words to revise: **teacher, class.**

T: First let us revise some words we have learned. The word is teacher. Who can show/tell what it means?

Call on 2-3 pupils. Give appropriate feedback.

T: Tell your partner one sentence with the word.

Ask 2-3 pupils to share a sentence.

Repeat for each word.

During Instruction

Nigeria Northern Education Initiative Plus: Grade 1 Teacher's Guide[22]

CFU Questions: Clarifying student learning gaps

Check for Understanding and Homework 3 mins.

1. Hold up the flashcards [M] and [m]; ask the pupils to identify the letter name.
2. Ask the pupils what sound [M] and [m] make.
3. Ask the pupils to point to things in the classroom that start with the /m/ sound.

Tusome Early Grade Reading Activity: Grade 1 English Teacher's Guide[20]

Teacher Note: Flexibility to modify instruction in real-time.

Grammar Game

T: Now we will revise the words we learned in our stories this week. Open your book to page 35. I will say a word and you will show me a picture of the word. *(Repeat several times.)*

Say each word and wait for pupils' response. If more than half the class does not know the word, show them the picture and then ask the class again.

Words to revise: market, bread, tomatoes, onions, potatoes, fish, rice, shopkeeper, pot, bowl.

After Instruction

Liberia. AQE Teacher Guides: Literacy[23]

Student Reflection Prompts

END-OF-WEEK SELF-ASSESSMENT

Self-Assessment

- Ask learners the following questions:
  - What did you learn this week?
  - How did you feel during the lessons?
  - What did you learn from the lessons that you could apply outside of school?

India. Mission Prerna Numeracy Teacher Guide[18]

Decision Block: Proceed if 70% answer correctly

- शिक्षक बोर्ड पर एक कुर्सी का चित्र बनायें। उसके ऊपर बैठी कोई एक बच्ची और नीचे एक बिल्ली का चित्र बनायें।
- कुर्सी के ऊपर कौन है?
- क्या बिल्ली कुर्सी के नीचे बैठी है? अगर हाँ, तो क्यों बैठी है?
- आप बताओ आपने किस-किस को कुर्सी में बैठते देखा है? और किस-किस को नीचे बैठते देखा है?

क्या 70 % छात्रों ने प्रश्नों का सही उत्तर दिया है?

हाँ : छात्र पुस्तिका अभ्यास 01 कराएं

नहीं : इस योजना को दोबारा दोहराएं

कार्य चक्र पूरा करने के बाद अभ्यास गतिविधि 01 कराएं।

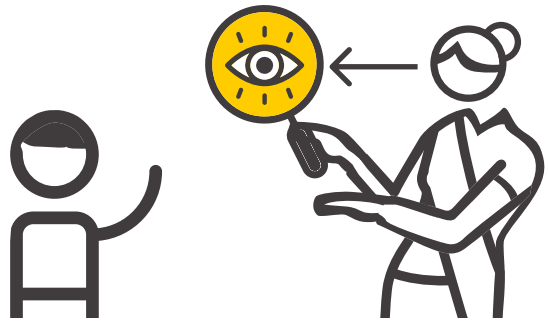
Build teacher capacity to understand what is A-i-i and what is not A-i-i.

Teachers need the knowledge & skills that lead to successfully implementing A-i-i in the classroom. It is important for teachers to understand the assessments' fundamental principles and purpose.[24] Teachers with limited A-i-i experience are highly likely to have an underlying assumption that assessment is a standalone activity that can happen only after the end of a unit/ lesson.[5] They might not understand that A-i-i is a dynamic activity rather than static. Others may confuse A-i-i with just assessing more frequently. Hence, it becomes vital to clarify teachers' misconceptions and generate buy-in to A-i-i.

Recommendation 2a

Help teachers understand what is A-i-i, its purpose, and how to implement in classroom

Learn More ⟶



Recommendation 2b

Train teachers to use simple classroom assessment strategies

Learn More ⟶

Help teachers understand what is A-i-i, its purpose, and how to implement in classroom

Teachers vary in their capability to understand the purpose of assessment and apply various assessment strategies in the classroom.[25] Accordingly, a dedicated training module is needed to orient teachers on the materials as per the program design of the implementation partner.

PRINCIPLE

Each training module should follows an underlying instructional design - starting with an invitation to feel the problem, diagnose it, explore the solutions, look forward to it, and finally - practice their learning through embedded questions.

Step 1 Opening/ Hook: Why am I assessing?

[Make teachers want to know more/further]

- Shows the big conflict: desired state + Using mentaphor or analogy depict the big problem
- One-line pitch of solution being offered in this video.

Step 2 Problem Diagnosis: What are we solving for teachers?

[Focus on the teachers problems that we are actually solving]

- Explain the desired state for the teachers.
- Explain what's stopping them to get there i.e. the specific challenges.

Step 3 Solution Overview & Details: How are we solving the problems?

- Layout various features/ components of solution in action
- Explain each feature as: Feature → Benefit to Teacher → Benefit to Student → Example

Step 4 Conclusion: How do the teachers summmarize their learning?

- Inspiring end-note that teacher can take back with them
- Summarizing the main solution pointers for the teachers to accommodate

Step 5 Assessment: How can the teachers assess their learning?

- Writing maximum 3 questions for each video based on outcome of the training module

Help teachers understand what is A-i-i, its purpose, and how to implement in classroom

The training module should clarify the purpose of A-i-i, provide explicit action steps & methods on how to use the structured tools, and finally enable teachers to effectively act on assessment.

When developing the training content practitioners should address the following four components of assessments, from Earl and Katz[26], in their A-i-i module:

OPENING: Why am I assesing?

Teachers who may be new to A-i-i might misunderstand that A-i-i equals conducting more assessments or filling trackers. Hence, it is important to clarify the purpose of A-i-i.

PROBLEM: What am I assessing?

Teachers need a clear schema of tools and techniques to continually collect information about student learning progress & modify instruction in real-time.

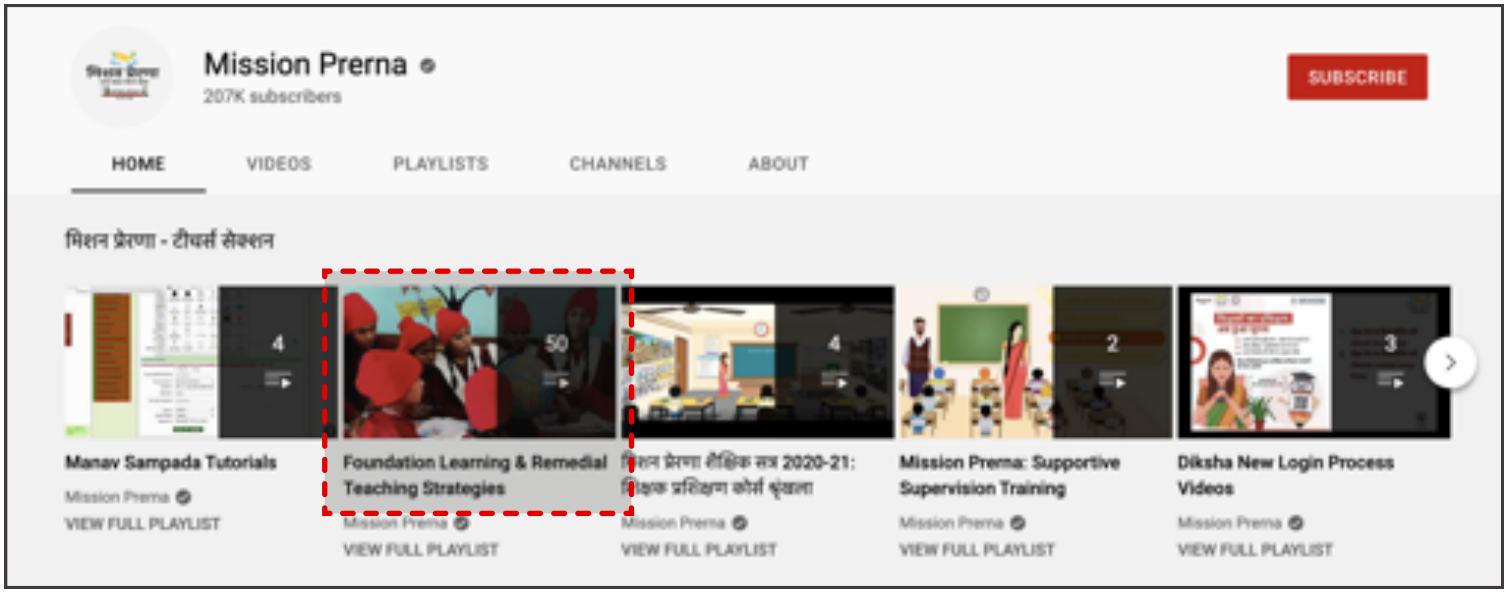
SOLUTION: What methods should I use?

Teachers need explicit action steps to understand how to collect information about studenta' learning progress.

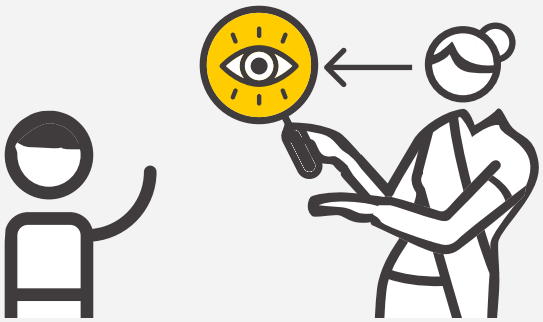
CLOSING: How can I act on assessment?

Teachers are required to analyze the collected student information in order to understand the breakdown in learning and plan action steps

Mission Prerna in Uttar Pradesh has a library of thematic playlists of training modules which includes videos on how to do assessment & classroom remediation strategies.



Source: https://www.youtube.com/c/MissionPrerna



Train teachers to use simple classroom assessment strategies

In order to *'support'* struggling learners by adapting classroom instruction in real-time, teachers need to *'identify'* struggling learners in real-time.[27] Teachers should be provided with a menu of formative assessment activities that teachers may choose from to identify struggling learners in the classroom.[5] These assessment activities can be conducted before, during, or after instruction.

PRINCIPLE

Before Instruction

Ensure students have pre-requisite knowledge

Teachers need to know techniques on how to conduct a quick check of students' understanding of a concept.

During Instruction

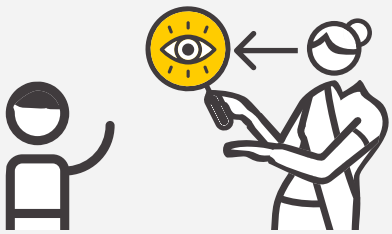
Ensure that all students are able to follow instruction

This is an essential step to identify which student is struggling and support them by clarifying their doubts in real-time.

After Instruction

Plan future activities

Give additional support to struggling learners. Based on the student-needs observed during instruction, teachers can take action to support struggling learners.



Train teachers to use simple classroom assessment techniques

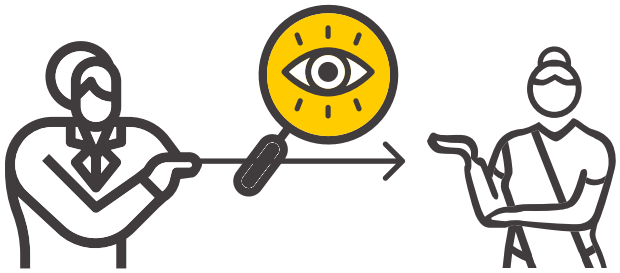
The table below is an extract from RTI's Assessment-Informed-Instruction - Classroom Level guide[5] which shows various classroom assessment techniques that can be embedded with classroom instruction.

Assesment Tool	Before Instruction	During Instruction	After Instruction
Thumbs up/ thumbs down; traffic lights; smiley/sad face	• Quick check for class understanding of a concept	Quickly observe student response.	Reteach any concept that received a negative response from more than 1/3 of the class.
Exit Ticket	• Snapshot of every students' understanding of a limited amount of lesson content.	Scan and sort exit tickets at the end of a lesson, during independent work or breaks.	Pair students who answered correctly and incorrectly. If most of the class got it wrong, reteach. If only handful got it wrong, give extra support
Questioning	• Student understanding • Student completion of task • Stimulate independent thinking	During lesson, make note of students struggling to answer and questions that few students offered to answer	Review questions that were challenging for the class. Check-in in one-on-one, or small groups, with students who answered wrong.
Weekly Quiz	• 5-10 questions with material directly related to the weeks activities • Provides information on each students mastery of content	Requires marking, recording scores and returning to students/ parents.	Group students based on understanding of topic or writting skills. For students who struggled to write, check understanding orally to better target support.

Trainers & coaches must demonstrate these strategies in trainings and one-to-one sessions to ensure teachers can apply them in the classroom. Additionally, teachers should be given dedicated time during trainings to practice techniques with trainers' support and feedback. Finally, instructional designers must embed these strategies in lesson plans for teachers to use them at regular intervals.

Capacitate trainers & coaches to provide effective ongoing support for the implementation of A-i-i

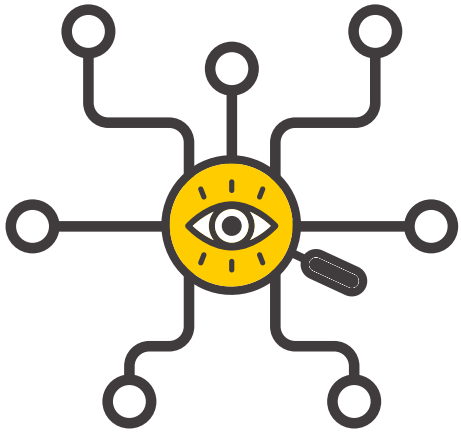
Together with forming academic support for teachers - trainers and coaches play a crucial role in ensuring the implementation of A-i-i in the classroom.[28] It is the responsibility of the academic support to bridge the gap between teachers' prior experiences and effective A-i-i practices.[29] The trainers and coaches should ensure that there is a gradual release of support for teachers. The recommendations below provide frameworks and suggestions through which trainers/ coaches can effectively support teachers in implementing A-i-i in the classroom.



Recommendation 3a

Train the trainers and coaches to gradually release A-i-i support to teachers

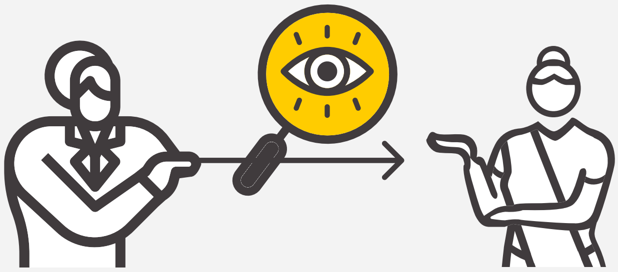
Learn More →



Recommendation 3b

Tightly knit TLMs, training, and academic support

Learn More →



Train the trainers and coaches to gradually release A-i-i support to teachers

For teachers who may be new to A-i-i, it is important not to give all the techniques and training in one event. New techniques and approaches must be spaced out in a series of events for teachers to grasp the knowledge and change their practice.[30] Hence, gradually releasing A-i-i support to teachers is an important component to ensure adoption of A-i-i.

PRINCIPLE

Gradual Release of A-i-i from trainer/coaches to teachers

Trainer/Coach Led - > Teacher Led

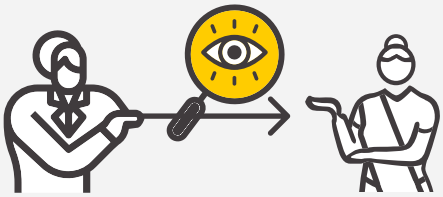
Background Knowledge on A-i-i | **Describe classroom A-i-i strategies** | **Demonstrate classroom A-i-i strategies** | **Guided Practice of A-i-i strategies** | **Independent use of A-i-i strategies**

Trainers/coaches require training and resources on A-i-i to support teachers on

- (a) identifying the student learning gap based on students' responses
- (b) modifying classroom instruction based on student learning data
- (c) giving targeted feedback that is clear, specific, and actionable.

While the amount of guided practice that individual teachers need will vary, practicing the approach is necessary for all teachers.

Practioners preparing materials for trainers and coaches need to ensure that the information from trainer/coach to teachers are released gradually - focusing on one component at a time to ensure adoption and usage. Central Square Foundation suggests the following steps to support teachers on successful implementation of A-i-i in classroom.



Train the trainers and coaches to gradually release A-i-i support to teachers

Central Square Foundation recommends the following steps for trainers and coaches to gradually release A-i-i support to teachers

Coach Led

Gradual Release of A-i-i from trainer/coaches to teachers

Background Knowledge on A-i-i

- The trainers/coaches provide background knowledge, including why students should use the strategy and how it will help them.

Describe classroom A-i-i strategies

- The trainers/coaches describe classroom assessment strategies & how A-i-i is built in the TLMs in detail.

Demonstrate classroom A-i-i strategies

- The trainers/coaches demonstrate/model how to use the strategies in the classrooms, soliciting ideas from teachers.

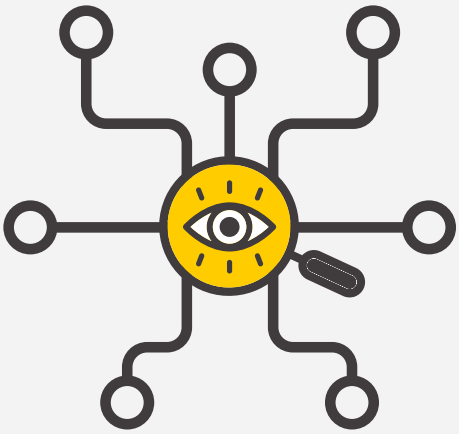
Guided Practice of A-i-i strategies

- Teachers practice with assistance from the coach as needed.
- It is essential to provide opportunities for rehearsal/ practice after feedback for teachers to absorb the A-i-i techniques
- Trainers/coaches provide targeted feedback to teachers on modifying classroom instruction to support students in the classroom.

Independent use of A-i-i strategies

- Coaches continue to monitor teacher practices for future lessons. If coaches observe that teachers are having difficulty in implementing the strategies, they provide one-to-one feedback and support.

Teacher Led



Tightly knit TLMs, training, and academic support

Program Leaders must design a program that includes multiple A-i-i touchpoints. Teachers will feel confident and supported when they have opportunities to be regularly engaged with A-i-i practices through materials, trainings, and academic support - where they can ask questions to trainers, get 1:1 supervision of coaches, and practice with peers.

PRINCIPLE

Teaching Learning Material

Teacher Guide/Manual should describe the details about how A-i-i is embedded in the program. This includes details such assessment strategies in daily lesson plan, weekly assessment & remediation structure, how to fill trackers etc.

Training

Training should have explicit guidance and demo on how to use A-i-i strategies, how to identify and support struggling learners along the process of remediation. Training should be based on material covered in TLMs. If possible, trainers should refer to explicit materials/page numbers from TLMs while training.

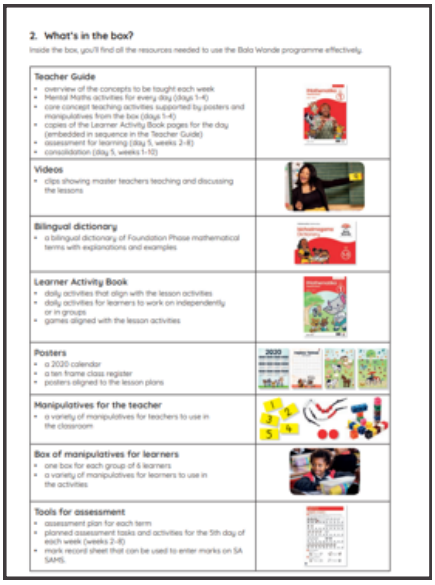
Academic Support

While teacher training can be used as a 'how-to-use' layer for A-i-i practices in TLMs, the coaching-mentoring should be used to check if teachers are able to effectively implement A-i-i strategies inside the classroom. Since coaches have multiple touchpoints with teachers through classroom observation, the academic support cadre can ensure teachers receive regular feedback and practice on A-i-i.

Tightly knit TLMs, training, and academic support

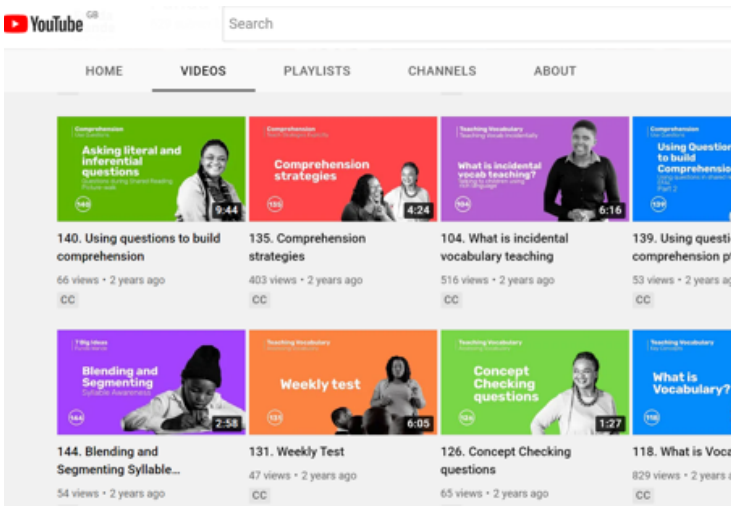
Evidence from Funda Wande shows that the entire package of TLMs<>Training<>Academic support resulted in much greater impacts than books and training or training alone.[31]

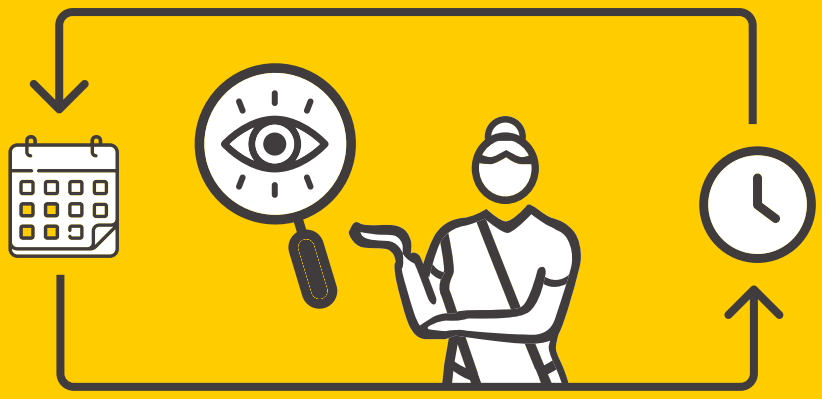
Teaching Learning Material



Academic Support

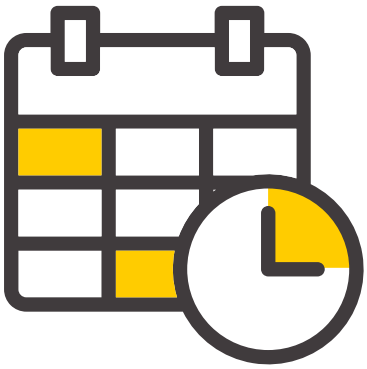
Teacher Training





Provide a structured instructional routine that helps teachers implement A-i-i in the classroom

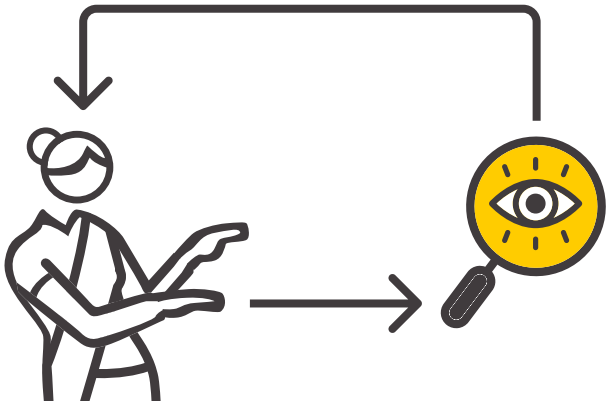
To successfully embed A-i-i within the program design and systems, program leaders must provide structures that enable teachers to absorb A-i-i practices into habit change. Behavior is predicted by a combination of (a) intent to act, i.e., motivation, (b) environment, i.e., tools, resources, teacher support, and (c) knowledge & skills.[32] In the context of A-i-i, behavior change requires equipping stakeholders with the right resources, processes, and support to implement the A-i-i approach in their classrooms. Providing a structured instructional routine enables teachers to absorb A-i-i practices into habit change.



Recommendation 4a

Allocate specific time at a weekly/or daily level for assessment & remediation

Learn More →



Recommendation 4b

Establish structures for teachers to ensure regular practice and feedback on A-i-i

Learn More →

Allocate specific time at a weekly/or daily level for assessment & remediation

There are multiple ways to build A-i-i as a pedagogical routine: it can be at periodic/weekly level by allocating specific days for assessment and remediation. Or the structures can be setup at daily level by allocating specific time intervals during the day to practice/conduct activities involving A-i-i.

PRINCIPLE

Weekly/periodic level

- Allocate specific days for instruction, consolidation, assessment & remediation.
- First three or four days of the week can be used for instruction i.e introducing new concepts.
- Second half of the week i.e. fourth and fifth day can be specifically used for consolidating learning and assessing students on the learning objectives covered during the week
- Final day of the week can be specifically allocated for: (a) Remediation: Identifying and supporting struggling learners, and (b) Additional Practice: Building procedural fluency for other students

Daily level

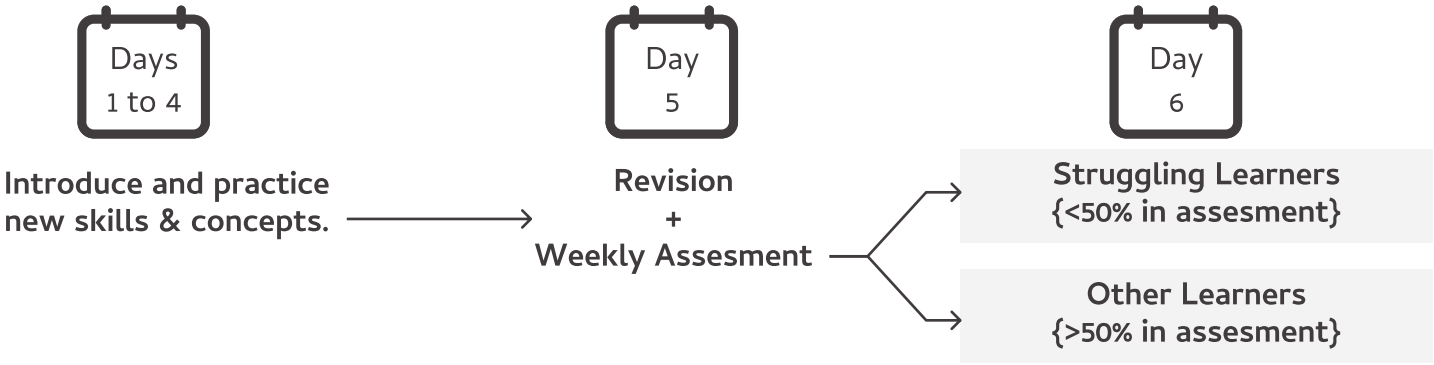
- Start each lesson with a quick check for understanding question from previously learned concepts. This can be followed up by a quick recap/consolidation.
- Establish a specific time-period everyday to conduct A-i-i activities. For instance, first-hour everyday can be A-i-i hour to conduct revision, Independent practice, and teacher supporting struggling learners.
- Teachers use the information gathered during the day to plan for upcoming instruction,

Allocate specific time at a weekly/or daily level for assessment & remediation

Following are best practices for embedding weekly/daily instructional routine from Language & Learning Foundation (LLF) and Vikramshila Education Resource Society in India.

1. Weekly A-i-i routine embedded in Program Design

Language & Learning Foundation, Weekly Remediation, Haryana, India[33]



Support for struggling learners

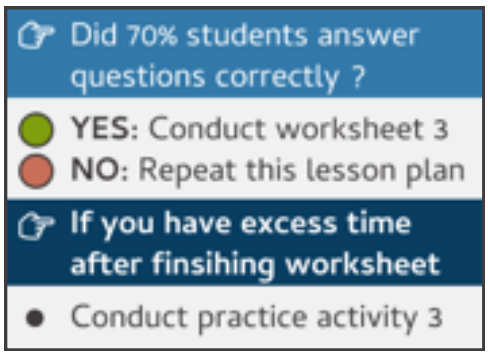
- Teacher identifies difficulties faced by learners & re-introduce the skill
- Each child practices using appropriate Teaching Learning Materials
- Informal assessment to check for improvement & individual feedback

Support for other learners

- Students are provided with Indendent/group work
- Additional practice to building fluency in concepts learnt in classroom

2. A-i-i Decision Block embedded in Lesson Plans

Vikramshila, Mission Prerna Numeracy Toolkit, Uttar Pradesh, India[18]



Within daily lesson plans, Vikramshila Education Resource Society provides a decision block for teachers to plan the next step in instruction. After completing the lesson plan, teachers proceed to worksheets only If 70% of students answers end-of-lesson question correctly, otherwise, they repeat teaching the lesson again.

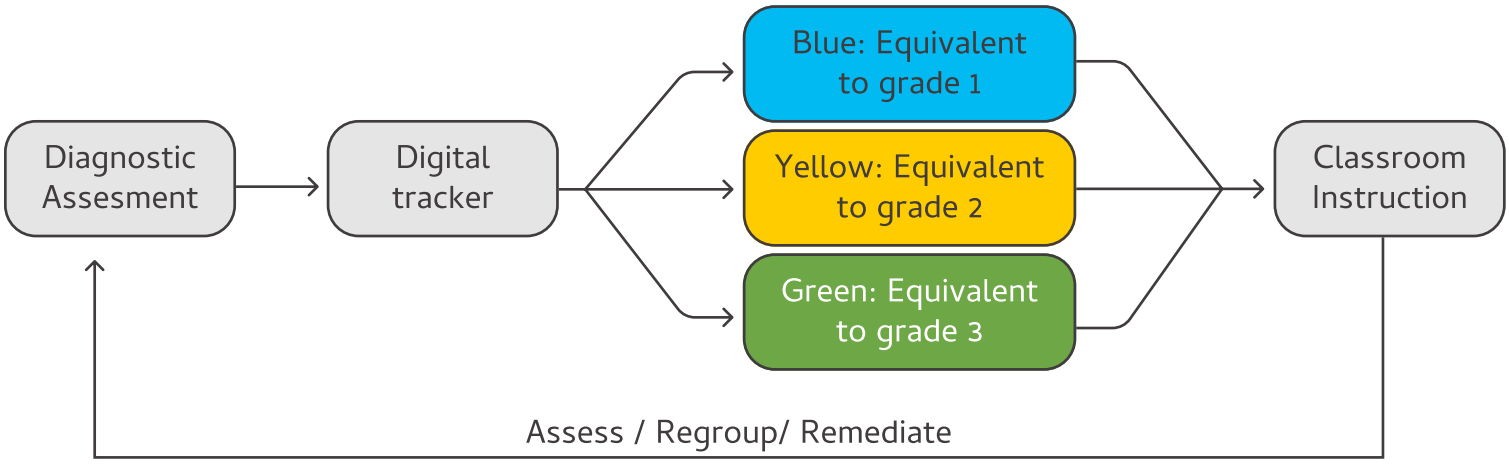
Allocate specific time at a weekly/or daily level for assessment & remediation

Madhi Foundation uses assessment & data-driven approach to drive classroom instruction & remediation for catering to the learning needs of students in multi-grade classrooms in India.[34]

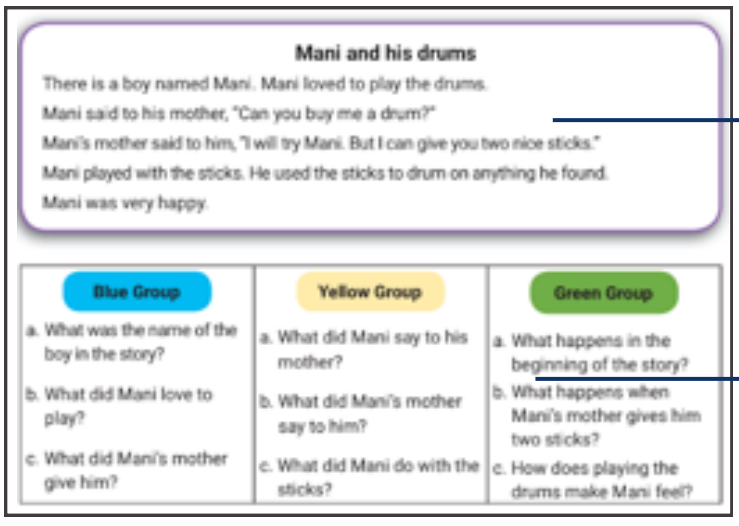
3. Assessment & data-driven instruction + remediation

Madhi Foundation, Teacher Guide, India[34]

Diagnostic assessments to facilitate need-based instructions. Teachers conduct assessments and with the help of a digital tracker, three ability wise groups are created. Three assessments (baseline, midline and end line) are conducted in a year to ensure grouping reflects the learners' journey through the year.



To ensure effective on-ground implementation, daily lesson plans contain group specific instructions.



Mani and his drums

There is a boy named Mani. Mani loved to play the drums.
Mani said to his mother, "Can you buy me a drum?"
Mani's mother said to him, "I will try Mani. But I can give you two nice sticks."
Mani played with the sticks. He used the sticks to drum on anything he found.
Mani was very happy.

Blue Group	Yellow Group	Green Group
a. What was the name of the boy in the story?	a. What did Mani say to his mother?	a. What happens in the beginning of the story?
b. What did Mani love to play?	b. What did Mani's mother say to him?	b. What happens when Mani's mother gives him two sticks?
c. What did Mani's mother give him?	c. What did Mani do with the sticks?	c. How does playing the drums make Mani feel?

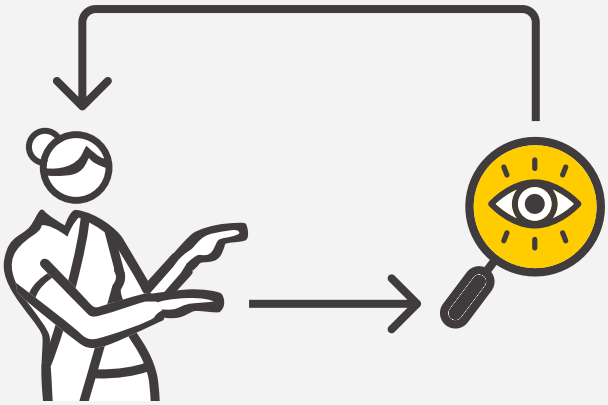
1 Lesson plan starts with instruction to address the whole class together.

2 Instruction is followed by need specific instructions based on ability levels.

Week 5 Day 3

எண்ணும் எழுத்தும் – English Assessment

3 Clear checkpoints marked for conducting weekly/ monthly formative assessments.



Establish structures for teachers to ensure regular practice and feedback on A-i-i

Evidence from various programs across the world shows that just a one-time training will not change teacher practice significantly, it needs to be supplemented with ongoing support.[35] This recommendation lays out various ways program leaders can embed A-i-i within the ongoing support model of their respective programs.

PRINCIPLE

In-class coaching and support

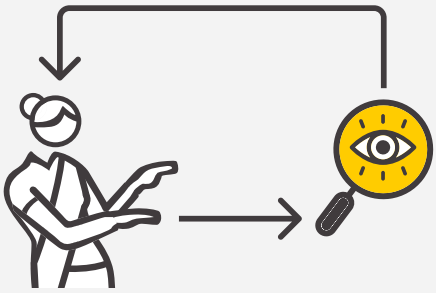
- Teachers who are new to A-i-i may need targeted feedback and 1:1 support from coaches.[36]
- Coaches observe teachers, carry out post-observation discussion and may be involved in collecting information to monitor the classroom.[37]
- Coaches can be head teachers in the schools or a dedicated pedagogical supervisor who acts as coach for a designated list of schools in the area.[38]

Professional Learning Communities (PLC)

- Building a professional community of teachers ensures they meet regularly to discuss their practice, troubleshoot, and reflect even without a coach.[39]
- PLC meetings may take place among teachers within a school, or involve teachers from a cluster of schools.[40]
- Coaches need to facilitate a few meetings and provide a framework for participants to take forward future meetings.[41]

Remote support using digital technology

- Since coaches have a unique perspective on multiple classrooms, they can also play an essential role in recognizing and sharing effective classroom practices.
- Coaches may choose to share this as anecdotal/ pictorial/video evidence remotely through digital technologies like WhatsApp.[42]
- Coaches use digital trackers available in app to deep-dive into student learning during review meetings.[43]



Establish structures for teachers to ensure regular practice and feedback on A-i-i

Evidence from EGRS and Funda Wande in South Africa shows that in-class coaching & support leads to much higher gains than one-time training activity

Training & 1:1 coaching support

Department of Basic Education, Republic of South Africa[44]

EGRS
EARLY GRADE READING STUDY
Re aga motheo

Structured Learning Programme

Centralized training

1:1 on-site coaching

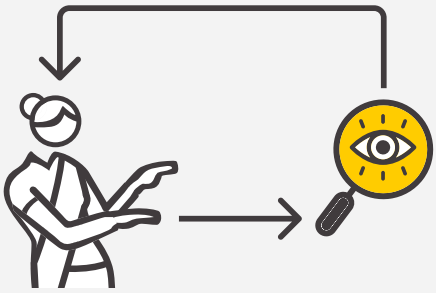
The Early Grade Reading Study in South Africa, Cilliers et al. (2018)[44] found that students exposed to two years of the program improved their reading proficiency by 0.12 standard deviations if their teachers received only centralized training, compared to 0.24 if their teachers received in-class coaching.

In-class coaching and support

Funda Wande, South Africa[31]

- The same coaches visit schools on a weekly basis to support teachers using the Funda Wande materials.
- Coaches provide advice on how to teach the content effectively and how to use the materials provided, as well as answer teachers' questions.
- Funda Wande coaches are aware of the bilingual approach to teaching and support teachers in regional languages.

Example:



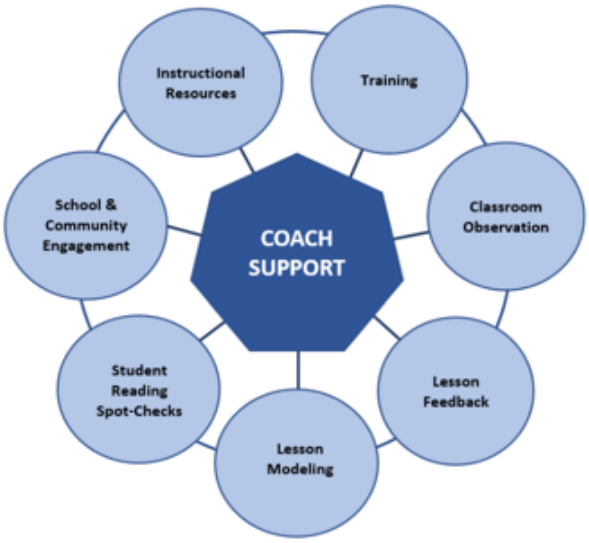
Establish structures for teachers to ensure regular practice and feedback on A-i-i

Liberia coaching model lays the groundwork to allow the coach-teacher relationship to evolve over time as the teachers' level of expertise and needs evolve.[45] Madhi Foundation provides support in the form of digital tracker and monthly review meetings.

In-class coaching and support

Coaching in USAID Read Liberia, Liberia[45]

- The Read Liberia coaching model encompasses seven areas of support (highlighted in the image) through teacher coach conferences, lesson modeling, student reading spot checks, assessments and report cards.
- The key role of Read Liberia coaches is to help teachers build their pedagogical expertise and improve their students' achievement.
- The model provides continuous support to improve classroom delivery of early grade reading instruction

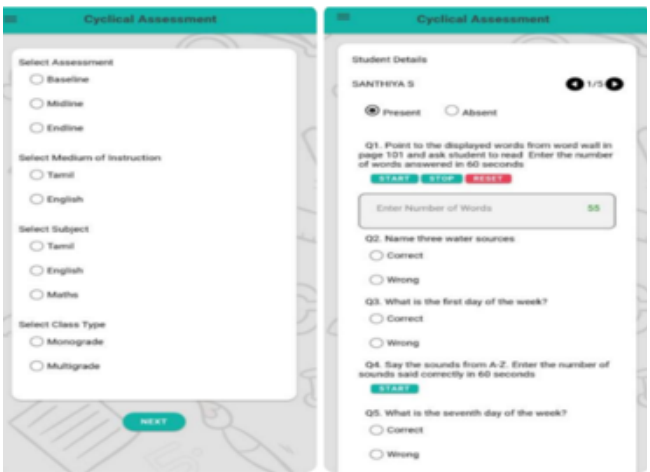


Areas of Support Provided by Coaches in Read Liberia

Remote support using digital technology

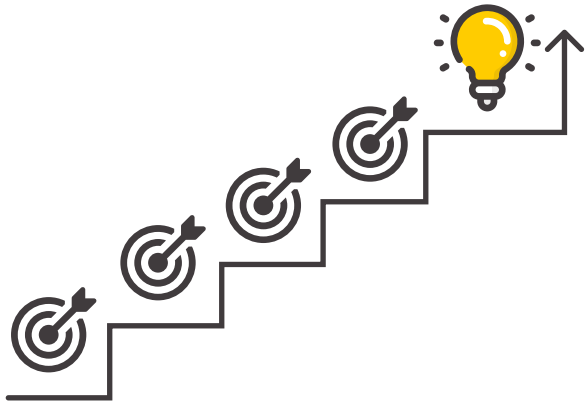
Madhi Foundation, India[46]

- **Data collection & tracking** - Teacher records assessment data in the app which generates a digital tracker grouping student based on their abilities.
- **Evidence backed reflection** - Monthly review meetings are held with coaches to discuss the progress based on the data collected in the app.
- **Feedback incorporation** - The teachers are provided access to digital courses based on their areas of development.



Build a clear linkage between formal examinations, classroom instruction, and curriculum

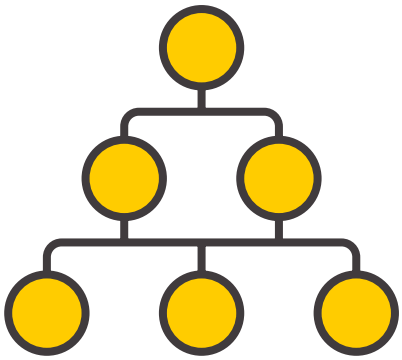
To ensure A-i-i's success at scale, it is crucial to make sure that there is a coherence between what is taught (content) vs. what is assessed (assessment). One of the probable causes of 'teaching to the test' and 'assessments being used to punish low stakes' is that each assessment is based on different frameworks.[47] Such mismatches can make it difficult for teachers to focus on in-classroom assessments and use assessment results. Hence, it is vital to promote a single curriculum framework for instruction and examinations at all levels.



Recommendation 1a

Establish a learning outcome framework (LOF) that maps out the 'micro-steps' of learning

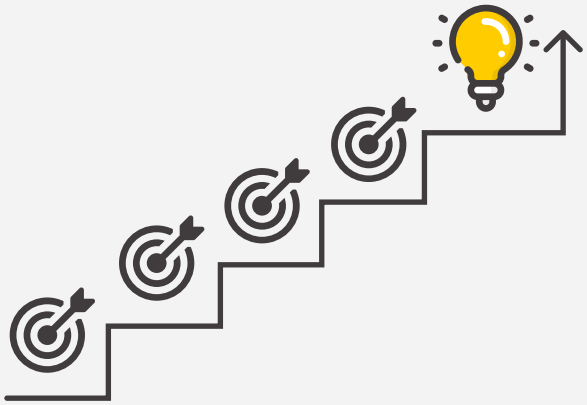
Learn More ⟶



Recommendation 1b

Building coherence in assessments from the state to classroom level

Learn More ⟶



Define a learning outcome framework (LOF) that maps out the 'micro-steps' of learning

Teachers need a detailed scope & sequence of 'micro-steps' to understand the learning tracjectory of the concepts covered in the year.[48] Through these micro-steps, teachers are able to identify: (a) the exact point at which the student's learning fails, (b) what are the pre-requisite and future micro-steps which student needs to master to progress forward.

PRINCIPLE

Gaps in the Existing Learning Outcomes Framework (LOF)

- **Clear** - existing outcomes are ambiguous and repetitive; clear articulation of foundational competencies and outcomes is absent.
- **Coherence** - the learning progressions and linkages across concepts and skills are missing.
- **Specificity** - existing outcomes are objectives and therefore can not be measured.

→

Recommended Learning Outcomes Framework (LOF)

- **Sharpened** definitions of learning goals and outcomes in early grades
- **Micro Level Learning Competencies** mapped to national & international standards and research on early learning trajectories
- **Alignment between instruction, assessment and remediation** to ensure FLN achievement

The following are the key features established from RTI's How-to-guide on Curriculum and Scope and Sequence Development for Literacy and Numeracy:[48]

Content & frequency

Determine which skills will be taught and their frequency each week.

Developmental progressions

Sequence & pace content in a way that the level of difficulty level increases systematically.

Aligned to national standards

The framework should be closely mapped to the national framework

Link multiple resources

Taxonomy compatible to link multiple learning resources like Lesson plans, worksheets, & assessments

Define a learning outcome framework (LOF) that maps out the 'micro-steps' of learning

Central Square Foundation recommends systems/programs to create a similar learning outcome framework:

Domains

Learning Domains are major areas of knowledge in the curriculum

Goals

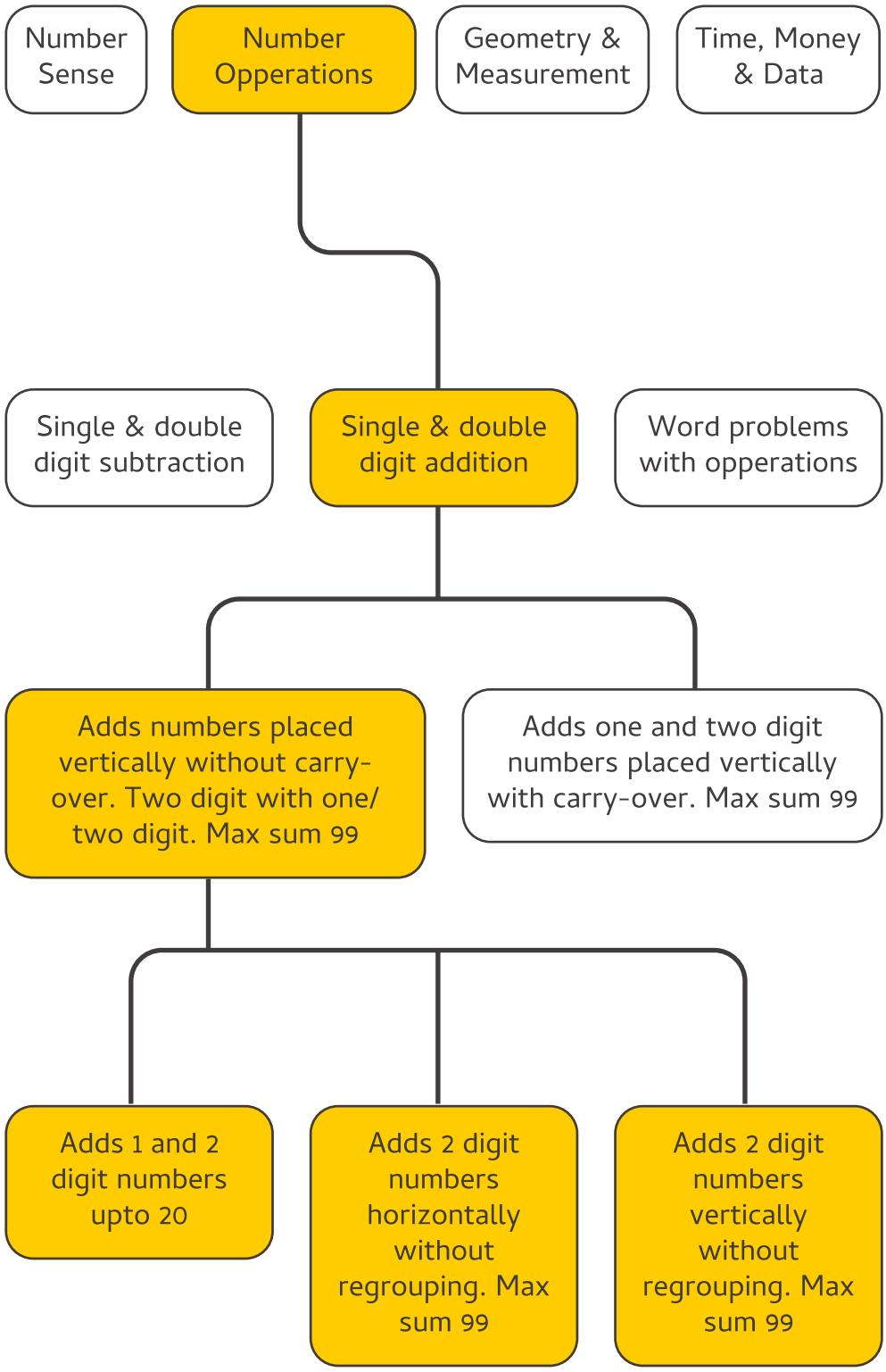
Goals are the list of skills covered under each domain.

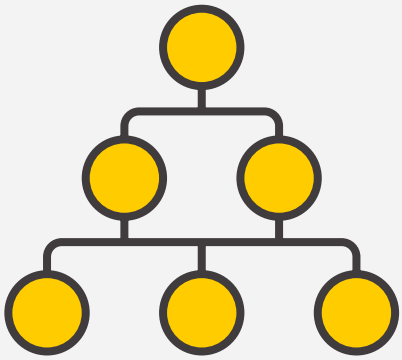
Milestones

Milestones are the sub-skills that should be acquired in order to build proficiency within a domain-goal.

Micro-competencies

Micro steps to be mastered in order to be proficient in a learning competency.





Coherence is needed among assessments from the state level to the classroom level

To ensure effective implementation of A-i-i, system leaders must ensure that there is coherence of assessments at all levels. Misalignments between curriculum, instruction, and assessments for teachers to know what to focus on in classroom assessments and how to use assessment results.

PRINCIPLE

Student assessment systems are able to provide a true picture of a student's learning levels if they are coherent with established goals for learning. A key feature of a coherent assessment system is:

Horizontal Coherence: align curriculum, instruction, and assessment[49]

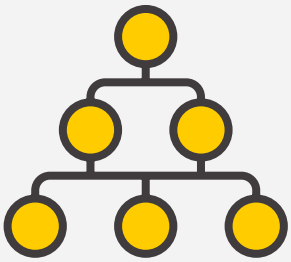
- **National or State level:** High stake assessments fully embody goals from the learning framework.
- **District level:** Align assessments to learning outcomes, curricula & teacher professional development.
- **Classroom level:** Assessments be so thoroughly integrated with curriculum and instruction that the feedback they provide can immediately be put to use.

Vertical Coherence: Link classroom and system or large-scale assessments[49]

- Different stakeholders at state, district and school levels have different information needs. Vertical coherence across assessments from classroom based to system level is ensured when the design of these assessments is driven by the same learning framework and reflect fundamental coherence.

CSF's Assessment Architecture Framework has demonstrated how coherence among assessments can be ensured at all levels.

Identify curricula goals & associated micro-compentencies	Map classroom level objectives with district/state levels	Align curriculum, instruction, and assessments
Assessments used to inform policy at the state level can be mapped to crucial FLN goals formed by amalgamating sub-skills and micro-competencies.	Map the clearly defined scope and sequence of micro-learning objectives at a classroom level, with district & state level LOs.	Map the assessments used to inform instruction and remediation at the classroom to the micro-steps of the state level goals.



Coherence is needed among assessments from the state level to the classroom level

Central Square Foundation recommends systems/programs to create a similar assesment architecture:

State level

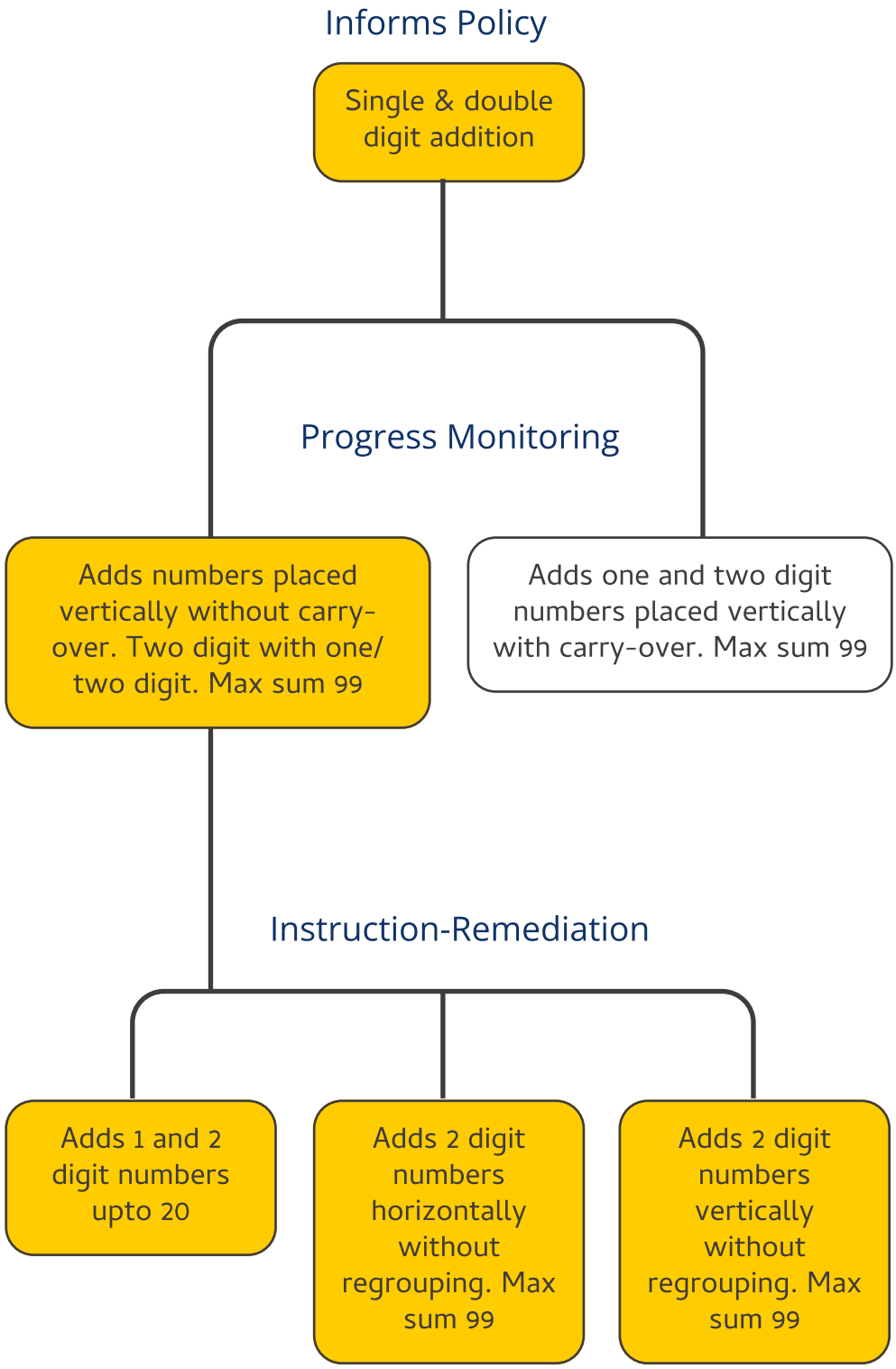
Assesment of key FLN Goals **(Competencies)**

District/Block level

Assesment of key Milestones **(sub skills that are needed to build mastery of key FLN Goals)**

Classroom level

Assessment of micro-competencies **(micro-steps that children need to achieve to reach the milestones and finally the goals)**



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