



An Alignment of System 44® with The International Dyslexia Association's "Effective Reading Instruction for Students with Dyslexia*"



 $* \ International \ Dyslexia \ Association. \ (2015). \ Effective \ reading \ instruction \ for \ students \ with \ dyslexia. \ The \ International \ Dyslexia \ Association. \ Retrieved \ from \ https://dyslexiaida.org/effective-reading-instruction/$

System 44 Senior Authors



Dr. Marilyn Jager Adams **READING INSTRUCTION**

Visiting Professor, Cognitive and Linguistic Sciences Department, Brown University; Adjunct Professor, Stavanger College, Norway System 44's research-based scope and sequence was designed by Dr. Marilyn Jager Adams—one of the nation's leading researchers on phonics and an architect of the Foundational Reading Standards of the Common Core State Standards. Dr. Adams is internationally regarded for her research and applied work in the areas of cognition and education. A recipient of the American Educational Research Association's Sylvia Scribner Award for outstanding research, Dr. Adams has made contributions that include the landmark book Beginning to Read: Thinking and Learning About Print (MIT Press). Dr. Adams chaired the planning committee for the National Academy of Science's report, Preventing Reading Difficulties in Young Children, and served on an advisory board for the International Dyslexia Association. Dr. Adams also served on the steering committee for the 2009 National Assessment of Educational Progress in Reading.



Dr. Ted Hasselbring ADAPTIVE TECHNOLOGY

Professor of Special Education Technology Peabody College of Education, Vanderbilt University, Tennessee System 44's adaptive technology was created by Dr. Ted Hasselbring. Over the past twenty-five years, Dr. Hasselbring has conducted research on the use of adaptive technology to enhance the instruction of students with mild disabilities and those who are at risk of school failure. At the heart of this adaptive technology is the research-validated FASTT algorithm (Fluency and Automaticity Through Systematic Teaching with Technology), developed in partnership with Dr. Hasselbring's team at Vanderbilt University. He has authored more than one hundred articles and book chapters on learning and technology and serves on the editorial boards of six professional journals. He is also the author of several instructional software programs, including READ 180, System 44, iRead, and FASTT Math.



System 44[®] is an intensive foundational reading program for our most challenged students in Grades 3–12+ and is proven to help students with significant reading deficiencies master foundational reading skills through explicit instruction, personalized learning, and continuous progress monitoring.

Recognizing that both foundational reading skills and noncognitive skills, as well as the implementation of them, are critical to reading success, *System 44* was designed with students with specific disabilities, such as dyslexia, in mind. The International Dyslexia Association (IDA) states that a Structured Literacy instruction model that is implemented with evidence-based, direct, explicit, structured, and sequential instruction is an effective instructional intervention for dyslexic students (2015).

System 44 provides the elements of a Structured Literacy instruction model that are recommended by the IDA. Phonological support, sound-symbol association, syllable instruction, morphology, syntax, and semantics are woven throughout the program guided by principles of how these critical elements are taught and enhanced with support for students' noncognitive needs. System 44 accomplishes this by providing systematic and cumulative instruction, ensuring that the organization of material follows the logical order of the language with each step being based on concepts previously learned. Explicit instruction also drives student learning by requiring deliberate teaching of all concepts with continuous student-teacher interaction, as does diagnostic teaching that ensures that instruction meets each students' individualized needs through careful and continuous assessment. Students are continuously encouraged to work hard to achieve long-term goals throughout System 44.

The pages that follow highlight how System 44 supports students diagnosed with dyslexia in an explicit and systematic manner.



System 44 Program Components

Student Materials





Student Software



Paperback Library

Student Dashboard



DECODABLE DIGEST

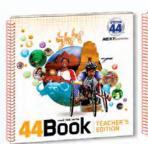
Decodable Digest

44Book

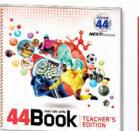
Teacher Materials







44Book Teacher's Edition



Teaching Resources



Resources for





Professional Development Resources

Differentiation

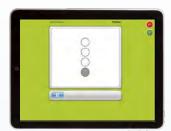


Screening and Placement

System 44 includes *The Phonics Inventory*TM for screening, placement, and progress monitoring. *The Phonics Inventory* represents an additional data source for assessment of letter knowledge, reading words in isolation, and decoding unfamiliar words. Three equivalent test forms screen and place students into *System 44* and help monitor their progress at key points throughout the program. *The Phonics Inventory* also includes reports and resources as well as test accommodations.

The Phonics Inventory is a computerized, research-based, and validated assessment that can be administered to multiple students in about ten minutes. Using various discrimination tasks, this assessment determines whether or not the root cause of a student's reading difficulty is an inability to decode, and it identifies the student's appropriate point of entry in the System 44 program.





◀ Practice Test

An integral part of each test administration, the Practice Test "warms up" students by preparing them on the test interface.



◀ Letter Recognition

The Letter Recognition test measures students' abilities to identify lowercase letters when read aloud.



◀ Sight Word Recognition

The Sight Word Recognition test assesses students' knowledge of high-frequency sight words. Orthographically similar words are used as distractors to ensure students' strengths in this skill.



NonWord Decoding

The NonWord Decoding test assesses students' pure decoding skills in a decontextualized environment. Nonwords follow the structural conventions of the English language but have no meanings.

System 44 and Elements of Structured Literacy Instruction for Students with Dyslexia*

Elements of Structured Literacy Instruction for Students with Dyslexia

Phonology is the study of sound structure of spoken words and is a critical element of *Structured Language* instruction. Phonological awareness includes rhyming, counting words in spoken sentence, and clapping syllables in spoken words. An important aspect of phonological awareness is phonemic awareness or the ability to segment words into their component sounds, which are called phonemes. A phoneme is the smallest unit of sound in a given language that can be recognized as being distinct from other sounds in the language. For example, the word *cap* has three phonemes (/k/, /ă/, /p/), and the word *clasp* has five phonemes (/k/, /I/, /ă/, /s/, /p/).

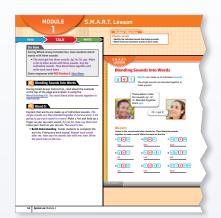
System 44 Personalized Instructional Software and Teacher-Facilitated Instruction

System 44 delivers research-based, explicit, scaffolded, and systematic instruction in the 44 speech phonemes of English, providing the foundational literacy skills that are essential to the academic success of all struggling readers. The instructional sequence for System 44's phonemic awareness lessons presents the most stable, frequent, and highest-utility sounds first so that students can quickly begin to experience success when connecting sounds to letters and decoding words.

In the adaptive software, The Code presents explicit instruction based on a comprehensive scope and sequence. Direct instruction embedded in the software further develops students' phonemic awareness skills in the context of decoding, or word identification, and encoding, or spelling. For example, the software engages students in auditory and visual phonological awareness activities, such as word/syllable recognition, onset/rime recognition, and listening/responding.

With the 44Book, teacher-led SMART (Strategies for Metacognition, Academic Language, Reading, and Thinking) lessons provide metacognitive training in blending, segmenting, and other phonemic awareness skills and strategies. Correct pronunciation and articulation of phonemes is reinforced by the teacher as well as with video models in the software. The teacher-led instruction allows for students to transfer the acquisition of foundational skills they have learned while working independently on the software.

Students have many opportunities to use visual, aural, kinesthetic and tactile modalities to strengthen phonemic awareness. For example, the *Resources for Differentiated Instruction* (RDI) Small-Group lessons that incorporate the word building kit use letter tiles to offer students the opportunity to manipulate letters and morphemes in order to create new words. This visual/tactile activity builds phonemic awareness as students add and subtract phonemes.





Student Dashboard

Module 1 SMART Lesson

Blending Sounds Into Words



Elements of Structured Literacy Instruction for Students with Dyslexia

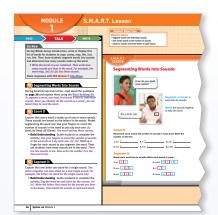
Sound-Symbol Association— Once students have developed the awareness of phonemes of spoken language, they must learn how to map the phonemes to symbols or printed letters. Sound-symbol association must be taught and mastered in two directions: visual to auditory (reading) and auditory to visual (spelling). Additionally, students must master the blending of sounds and letters into words as well as the segmenting of whole words into the individual sounds. The instruction of sound-symbol associations is often referred to as phonics. Although phonics is a component of *Structured Literacy*, it is embedded within a rich and deep language context.

System 44 Personalized Instructional Software and Teacher-Facilitated Instruction

System 44 delivers explicit, scaffolded, systematic instruction in the phonological structures of English. Adaptive software activities and teacher-led lessons provide intensive training in letter-sound relationships, segmenting, and blending. Instruction and modeling help students to build aural discrimination between sounds and to match those sounds to their spellings. Audio and visual effects, such as images, animations, context sentences, and Spanish translations, provide support for students as they blend and read new words.

System 44 is designed to scaffold struggling readers in applying decoding skills to connected text from the start. Thus, the scope and sequence first introduces grapheme—phoneme combinations that are the most stable, the most useful for making words, and the most frequent in occurrence. The software transfers routines, and teacher-led instruction then scaffolds students in transferring newly acquired decoding skills to novel words and connected text on the computer and in the 44Book, library books, and Decodable Digest. The Decodable Digest provides students with additional opportunities to read decodable text with independence. There are two passages for every sound/spelling correspondence taught in the program, offering at least 75% decodable text designed in graphic novel format to engage reluctant readers.

Teacher-led SMART lessons build metacognitive decoding knowledge and word strategies by directly teaching foundational phonics principles and essential concepts.





The Code Sound it Out

Module 1 SMART Lesson

Segmenting Words Into Sounds

System 44 and Elements of Structured Literacy Instruction for Students with Dyslexia*

Elements of Structured Literacy Instruction for Students with Dyslexia

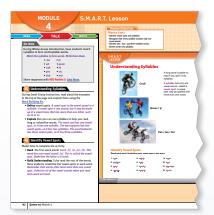
Syllable Instruction—A syllable is a unit of oral or written language with one vowel sound. Instruction includes teaching of the six basic syllable types in the English language: closed, vowel-consonant-e, open, consonant-le, r-controlled, and vowel pair. Knowledge of syllable types is an important organizing idea. By knowing the syllable type, the reader can better determine the sound of the vowel in the syllable. Syllable division rules heighten the reader's awareness of where a long, unfamiliar word may be divided for great accuracy in reading the word.

System 44 Personalized Instructional Software and Teacher-Facilitated Instruction

The goal of the System 44 Word Strategies strand is to teach students to recognize common syllable types so they can efficiently decode multisyllabic words. During the Word Splitter activity, students identify the vowel in the base word to help identify the number of syllables and then read each syllable or word part, followed by the whole word. In the Smart Zone, a Direct Instruction video explains key concepts about word parts, syllable types, and word attack strategies.

The System 44 Teacher's Edition and Resources for Differentiated Instruction (RDI) provide teacher-facilitated instruction for all six syllable types. Lessons focus on syllabication, teaching students to count the beats in a pronounced word, identify the graphemes in the syllables, and blend syllables to read the word. Students also practice and apply reading syllables in the 44Book, Decodable Digest, and Library Teaching Resources.

Refer to the Master Skills Tracker in the *System 44* Teacher's Edition for specific lessons for each syllable type, including closed, vowel-consonant-*e*, open, consonant-*le*, *r*-controlled, and vowel teams.





Word Strategies r-controlled Syllables

Module 4 SMART Lesson **Understanding Syllables**



Elements of Structured Literacy Instruction for Students with Dyslexia

Morphology—A morpheme is the smallest unit of meaning in the language. The *Structured Literacy* curriculum includes the study of base words, roots, prefixes, and suffixes. The word instructor, for example, is contains the root *struct*, which means *to build*, the prefix *in*, which means *in* or *into*, and the suffix *or*, which means *one* who. An instructor is one who builds knowledge in his or her students.

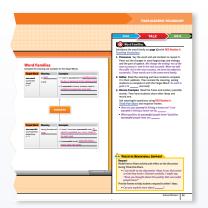
System 44 Personalized Instructional Software and Teacher-Facilitated Instruction

System 44 software and teacher-led lessons teach students to identify morphemes that help them "chunk" words to determine their meanings. Students learn to look for prefixes and affixes, count the "vowel spots" to identify syllables, break the words into syllables, read each syllable, and read the word. Thus, System 44 equips students to decode and determine the meanings of unfamiliar multisyllabic words they encounter in content area reading.

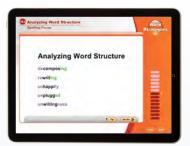
System 44 provides direct, multisensory, interactive teaching of individual words, independent word-learning strategies, morphological syllables, and high-frequency sight words. Every direct instruction lesson in System 44 includes preteaching of vocabulary words that students will encounter in the lesson and software. New words are introduced in small, manageable amounts and in groups that share a sound-spelling or morphological pattern.

System 44 software and teacher-led lessons provide direct, explicit instruction about splitting words into meaningful parts to help students recognize words and learn their meanings. Context sentences and pictures also help students connect meaning to content. Students have multiple exposures to new decodable and sight words both in isolation and, in context, cumulatively over time.

Students also practice and apply morphology in the 44Book, Decodable Digest, and Library Teaching Resources. Refer to the Master Skills Tracker in the System 44 Teacher's Edition for specific lessons for base words, inflectional endings, roots, prefixes, and suffixes.



Teach Academic Vocabulary **Word Families**



Word Strategies

Analyzing Word Structure

System 44 and Elements of Structured Literacy Instruction for Students with Dyslexia*

Elements of Structured Literacy Instruction for Students with Dyslexia

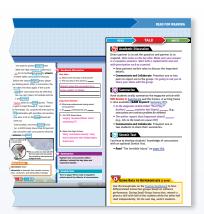
Syntax—Syntax is the set of principles that dictate the sequence and function of words in a sentence in order to convey meaning. This includes grammar, sentence variation, and the mechanics of language.

System 44 Personalized Instructional Software and Teacher-Facilitated Instruction

Instruction in syntax through the development of oral language skills is an integral component of the 44Book instructional path. Recognizing that struggling readers need highly structured and teacher-mediated opportunities for academic discussion, System 44 instruction builds structured academic conversation into every lesson. These scaffolded speaking and listening tasks provide students with frames to help structure their responses and ensure that they use the target vocabulary and grammatical structure. During these daily conversations, teachers use structured engagement routines to provide a consistent format for discussion and help hold all students accountable for engaging in conversation. Students engage in these academic discussions both one-on-one with the teacher and in groups with their peers. Academic discussions help develop the oral language skills that students can use to communicate across the content areas while also providing an opportunity for students to summarize and share what they have learned.

Each writing lesson in the 44Book focuses on applying language conventions to writing activities. The Writing Strand of the software also helps students build competency and confidence with syntax principles by writing summaries using evidence from the corresponding Success passages.

The Contrastive Analysis Charts for Grammar found in the English Language Development section of RDI identify grammar skills that speakers of other languages may have difficulty acquiring due to language transfer issues, and recommended instruction is provided.



44Book Academic Discussion Routines



Writing Zone Write Sentences to Convey Meaning





Elements of Structured Literacy Instruction for Students with Dyslexia

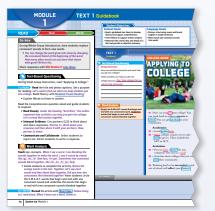
Semantics—Semantics is that aspect of language concerned with meaning. The curriculum (from the beginning) must include instruction in the comprehension of written language.

System 44 Personalized Instructional Software and Teacher-Facilitated Instruction

The System 44 instructional software includes scaffolded supports to develop comprehension and fluency. In the Fluency Zone, students encounter reading tasks that promote skills transfer and build comprehension. Students read decodable texts and engage in activities that require them to read and think about the meaning of the text. In the Success Strand, a Context Passage activity is designed to support the application of comprehension and vocabulary skills. During the activity, students complete a cloze passage to develop and demonstrate understanding of what they have learned in the Success Strand. The Writing Strand provides ample independent practice in writing summaries of the Success passages, thereby helping students build comprehension skills in addition to writing fluency.

In support of comprehension, the 44Book exposes students to higher-level text, high-leverage academic and domain-specific vocabulary, and daily opportunities for reading, writing, and speaking. Each module includes instruction in phonics, word study, comprehension, writing, and performance-based assessments. Within each module, students read three increasingly complex texts around one content-area topic (science, social studies, and life skills). Multiple readings on the same topic reinforce vocabulary and comprehension skills. For each reading in the 44Book, teachers model close reading through multiple reads of each text and guide students in responding to text-based questions by finding evidence to support their answers.

During the independent reading rotation, students develop their abilities to comprehend as they read their choice of 56 library titles available in three formats: paperbacks, audiobooks, and eReads. Each leveled title in the Student Library includes embedded comprehension questions that help guide students' thinking, understanding, and discussion of the text. System 44 eBooks provide even more opportunities for independence with engaging text. Audio recordings that accompany every library title help scaffold student access and promote listening comprehension. Discussion questions and small-group activities are included for each Decodable Digest reading and Student Library title to further support comprehension building. The Reading Counts! quizzes tied to each Student Library title measure comprehension and hold students accountable for their understanding. The Teaching Resources Guide includes Comprehension QuickWrites to reinforce and monitor oral and written comprehension.



Module 1 **Text-Based Questioning & Word Analysis**



Success Zone Comprehension

System 44 and Structured Literacy Instructional Approaches for Students with Dyslexia*

Structured Literacy Instructional Approaches for Students with Dyslexia

Systematic and Cumulative—Structured
Literacy instruction is systematic and cumulative.
Systematic means that the organization of
material follows the logical order of the language.
The sequence must begin with the easiest and
most basic concepts and elements and progress
methodically to more difficult concepts and
elements. Cumulative means each step must be
based on concepts previously learned.

System 44 Personalized Instructional Software and Teacher-Facilitated Instruction

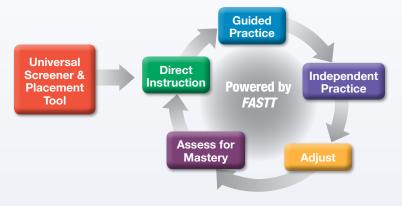
Throughout System 44, new material is presented in ways that help students process meaning and integrate new concepts with previous knowledge. The software's FASTT model is designed to facilitate transfer from effortful practice in short-term memory to long-term memory, by introducing manageable sets of items, providing repeated exposures, spacing review, and shortening response time. The FASTT algorithm expands recall by interspersing new elements with a gradually increasing number of known elements during practice. Students can fast-track through topics in which they demonstrate mastery or receive new material when additional practice is needed.

With the ultimate goal of helping students understand the meaning of what they read, *System 44* scaffolds students toward mastery of each strand in the complex process of skilled reading. Students' word recognition skills become increasingly automatic as they engage in lessons on phonemic awareness, phonics and decoding, syllabication and word analysis, spelling, and sight words. Students become increasingly strategic in their language comprehension skills through lessons in vocabulary, usage, and meaning, as well as through software activities and teaching routines that stimulate background knowledge and verbal reasoning and reinforce literacy knowledge.

Integrated throughout these lessons are frequent opportunities to practice weaving the skills together, ultimately building students' capacities to practice reading and comprehending decodable sentences appropriate to their stage in skill development. A content-specific transfer lesson is provided at the end of every set of software lessons, during which students view a background video and then read and record a related passage with support. The 44Book Teacher's Edition and RDI include transfer routines for teachers to use regularly with students. These transfer activities require students to read decodable sentences and passages and think about the meaning of the text.

The FASTT Model

(Fluency and Automaticity through Systematic Teaching with Technology)





Structured Literacy Instructional Approaches for Students with Dyslexia

Explicit Instruction—Structured Literacy instruction requires the deliberate teaching of all concepts with continuous student-teacher interaction. It is not assumed that students will naturally deduce these concepts on their own.

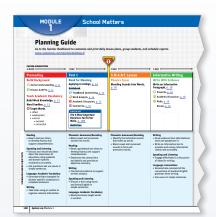
System 44 Personalized Instructional Software and Teacher-Facilitated Instruction

Explicit instruction in *System 44* blends daily opportunities for deliberate teaching and individualized learning technology. Teachers begin each day in whole group with a language warm-up and set the instructional goals of the day. Students then rotate through small groups for differentiated instruction with the teacher, personalized instruction on the software, and independent practice.

System 44's adaptive technology provides explicit, individualized instruction in letter-sound relationships that is skillfully organized according to stability, frequency, and utility of sounds. As students begin mastering decoding skills, the software builds decoding automaticity by requiring students to demonstrate accuracy and speed with letter-sound correspondence before moving on to new material. Throughout, the technology provides immediate, corrective, and patient feedback as students repeatedly practice new skills.

The *System 44* software continually collects data about student performance to provide the teacher with key, actionable information to drive differentiated instruction. With the Teacher Dashboard, data is made actionable with the algorithmic Groupinator®, which assigns students to groups based on skill or progress in the software. During small-group instruction, teachers use the *44Book* Teacher's Edition and *Resources for Differentiated Instruction* to provide explicit instruction according to students' needs.

System 44 provides the explicit instruction that students with reading difficulties need as a foundation for higher-level reading comprehension. The program's scope and sequence systematically integrates lessons on sounds and spellings with strategies for unlocking multisyllabic words to helps students "crack the code" of the English language.





The Code Direct Instruction

44Book Teacher's Edition

Planning Guide

System 44 and Structured Literacy Instructional Approaches for Students with Dyslexia*

Structured Literacy Instructional Approaches for Students with Dyslexia

Diagnostic Teaching—The teacher must be adept at individualized instruction. That is instruction that meets a student's needs. The instruction is based on careful and continuous assessment, both informally (for example, observation) and formally (for example, with standardized measures. The content presented must be mastered to the degree of automaticity. Automaticity is critical to freeing all the student's attention and cognitive resources for comprehension and expression.

System 44 Personalized Instructional Software and Teacher-Facilitated Instruction

In System 44, differentiated and individualized instruction are achieved by the integration of multiple assessments, multiple entry points, adaptive computer technology, and targeted instructional materials and strategies. Teachers can thus create learning environments for multiple purposes to meet the needs of individual students. Two distinct tracks in the software— Standard and Fast-Track—further individualize instruction with adaptive pacing, allowing students to skip content for which they already show mastery and focus more closely on their specific areas of need.

While all learners can benefit from the program's diagnostic instruction in phonics, multiple entry points, and opportunities for Fast-Track acceleration in the software, students with disabilities will particularly benefit from the Individualized Education Programs (IEP) supports. With System 44, teachers can use point-of-use data and reports, such as the new Individual Learning Plan, to measure student progress toward annual academic and behavioral IEP goals.

System 44 provides teachers with key actionable data, which helps drive diagnostic teaching. The software continually collects data about student performance and provides continuous corrective feedback to the student, freeing the teacher to focus on targeted direct instruction.

The Teacher Dashboards give teachers access to the most important student performance data to help drive instructional decision-making and planning. Data is made actionable with the Groupinator, which assigns students to groups based on skill or progress in the software. In addition to Data Snapshots and Notifications, the Teacher Dashboard provides differentiated lessons tied to that day's instruction.





System 44 Professional Learning

Research shows that teachers who receive professional learning increase their students' achievement significantly. At Houghton Mifflin Harcourt, we offer a full spectrum of professional services to help teachers do just that—improve their effectiveness to boost their students' performance.

From the initial implementation of System 44 to a deeper dive into foundational reading content, our expert consultants can help teachers implement and sustain best practices quickly and efficiently.

Initial Program Implementation

Getting Started: Professional Learning Day 1

This full-day course introduces participants to System 44 and its ability to help struggling readers achieve mastery of foundational skills in phonics, comprehension, and writing.

Learning Outcomes

- Understand the research base and preview the materials for instruction and practice
- Experience the System 44 Instructional Model
- Learn the structure and pacing of teacher-directed lessons and guided practice
- Use the Dashboards and management system to manage student enrollment, review data, monitor progress, differentiate instruction, and access resources
- Explore strategies for building a classroom community and managing rotations

Getting Started: Professional Learning Day 2

This full day course is designed to deepen participants' knowledge of the *System 44* instructional path and allow them to analyze data to further increase student achievement.

Learning Outcomes

- Implement strategies to increase student engagement and accountability
- Use rubrics to assess writing and target instruction at Writing CheckPoints
- Analyze report data to diagnose student learning needs and plan differentiation
- Conduct one-to-one conferences with students to reflect on progress and set academic and behavioral goals
- Gain expertise in using the Teacher Dashboard to help drive instructional decision making and planning

Getting Started: Leadership Professional Learning

This course is designed to help leaders get started with System 44 and monitor implementation and student data to support teachers and accelerate student achievement throughout the year.

Learning Outcomes

- Understand System 44's research-based materials and routines.
- Explore the role of the leader in System 44 schools
- Develop a plan to implement the program with fidelity based on multiple models
- Review the Leadership Dashboard and key reports for screening, placement, ongoing progress monitoring, and continuous assessment
- Identify tools, strategies, and next steps for successful program implementation

Coaching and Modeling

As teachers grow in their understanding of how to use *System 44* to support student achievement, one-on-one and team coaching provides opportunities to gain knowledge from an HMH program expert firsthand. Our Professional Learning Consultants help teachers develop instructional expertise by answering program questions, modeling effective instruction, leading grade-level program sessions centered on evidence of student learning, and helping teachers select and achieve instructional goals. Teachers, coaches, and leaders all benefit from this in-person service.

1:1 Coaching: Side-by-side, individual product coaching helps educators integrate new skills immediately into their practice.

Team Coaching: Team Coaching builds a community of learners, synchronizing teams of teachers across grade levels to share experience and expertise and collaborate on plans and protocols regarding product implementation.

Lesson Modeling: Lesson Modeling provides teachers with professional learning before, during, and after lesson delivery. An HMH Professional Learning Consultant sets the context for the lesson, focusing on lesson objectives, program resources, and "what to notice." Facilitated post-lesson reflection continues the instructional conversation, culminating in establishing next steps and setting goals.



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