

Intervention Taxonomy Brief: Seeing Stars[®] Program: Symbol Imagery for Phonological and Orthographic Processing in Reading and Spelling

The goal of this brief is to provide educators with information they can use to evaluate the appropriateness of the **Seeing Stars[®] Program: Symbol Imagery for Phonological and Orthographic Processing in Reading and Spelling** for a specific student or group of students who require supplemental and intensive intervention. The brief also may be used to guide decisions about the selection or purchase of a new intervention. We envision that the brief may allow users to examine the extent to which the program aligns to the Taxonomy of Intervention Intensity, a framework used by educators to categorize interventions along key dimensions. The information included in this brief is organized along the seven dimensions of the Taxonomy of Intervention Intensity and can assist educators in answering the following questions:

- Does evidence suggest that this intervention is expected to lead to improved outcomes in the identified area of need (**strength**)?
- Will the group size, duration, structure, and frequency provide sufficient opportunities for students to respond and receive corrective feedback (**dosage**)?
- Does the intervention match the student's identified needs (**alignment**)?
- Does the intervention assist the student in generalizing target skills to general education or other tasks (**attention to transfer**)?
- Does the intervention include elements of explicit instruction (**comprehensiveness**)?
- Does the student have opportunities to develop the behavior skills necessary to be successful (**behavioral support**)?
- Can the intervention be individualized with a data-based process to meet student needs (**individualization**)?

To learn more about the Taxonomy of Intervention Intensity and find resources to support implementation, visit <https://intensiveintervention.org/taxonomy-intervention-intensity>.

Program Summary

Lindamood-Bell collaborates with schools/districts using a Professional Learning Community (PLC) model to customize a Response to Intervention (RtI) design to best meet the aggregate learning needs of all students. Seeing Stars® Program: Symbol Imagery for Phonological and Orthographic Processing in Reading and Spelling and its constituent components are based on ESSA Evidence-Based programs and substantive neuroscientific and applied research initiatives in public education. We accomplish this within the mandates of IDEA, state and local education policies. Each partnership is unique depending on existing school/district variables. Lindamood-Bell's partnership and PLC philosophy is built around two main RtI concepts necessary to transform schools academically. First, instructional methodologies are based on a theory of cognition. This process-based cognitive approach stimulates specific brain-based skills including phonological and symbol imagery (orthographic processing), decoding, reading in context, and spelling. These underlying cognitive processes must be developed (Tier I) and/or remediated (Tier II & III) for all students to maximize their learning potential and benefit from standards-based instruction, strategies, materials, and curricula. Thus Lindamood-Bell adheres to and promotes a paradigm shift in how to best meet the cognitive and language processing needs of students, integrating both process and content/standards-based instruction. The skills addressed are foundational to all curricula and they cut across all standards. Second, while Lindamood-Bell's instructional practices are necessary, they are insufficient without simultaneously controlling for certain components or practices within the school system and/or culture in which they are to be implemented. To achieve large-scale and sustainable success, Lindamood-Bell collaborates with all levels of leadership, including the school board, district administration, and site-level leaders in evidence-based practices. Lindamood-Bell's approach is to work in a collaborative effort to address and improve the existing school framework, personnel, and practices all as applied to an RtI framework. Specifically, the main district and school leadership support components include sustained and embedded professional development, data analyses and accountability, differentiated instruction, leadership institutes, parent/community outreach, and a certification process for teachers. This model mirrors the conceptual framework of RtI.

Exhibit 1. Program Information

Features of program implementation	Program recommendations
Grade level(s)	PK–12
Group size	Up to 5:1 in homogeneous groups based on diagnostic data. Whole class, developmentally K–2
Intervention length	Approximately 8–12 weeks, or about 80–120 hours
Frequency	4–5 days per week
Session duration	1–4 hours per day

Features of program implementation	Program recommendations
<p>Cost</p>	<ul style="list-style-type: none"> ▪ Level 1^a <ul style="list-style-type: none"> • Public workshop: \$750 + \$400 required materials = \$1,150/participant • Inservice workshop: \$650 + \$400 required materials = \$7,650 for a minimum of seven participants, \$1,050 per additional participant ▪ Level 2: Annual membership = \$99. Complimentary access for Inservice Workshop participants ▪ Level 3: Job-embedded PD beginning at \$2,500 per classroom weekly or \$1,950 per classroom biweekly ▪ Level 4: Comprehensive School Partnership: \$13,000 + \$2,500 per classroom
<p>Training</p>	<p>Levels of PD provided are based on teacher, school, or district needs.</p> <ul style="list-style-type: none"> ▪ Level 1, Introduction <ul style="list-style-type: none"> • Workshop (13 seat hours), online or in-person • Review modules (five seat hours), asynchronous ▪ Level 2, Refinement <ul style="list-style-type: none"> • 12-month membership • Skills Boost modules (three seat hours), asynchronous • Bimonthly content webinars • Online professional learning community and forum ▪ Level 3, Advanced <ul style="list-style-type: none"> • Job-embedded PD (weekly coaching sessions for one to two semesters) • Advanced training modules (six seat hours), asynchronous • Monthly PLC meetings • Instructional leadership development ▪ Level 4, Systemic Model <ul style="list-style-type: none"> • Job-embedded PD (weekly coaching sessions) • Instructional leadership modules (seven seat hours, asynchronous) • Diagnostic assessment training (seven seat hours, synchronous and asynchronous) • Monthly PLC meetings • Leadership Academy

Note. PD = professional development; PLC = professional learning community.

^a Level 1 Workshops are a required prerequisite for all other levels of professional learning.

Evidence of Taxonomy of Intervention Intensity Dimensions

The following section presents definitions for the Taxonomy of Intervention Intensity dimensions and a summary of intervention-specific evidence for each dimension. The evidence comes from the intervention’s vendor or developer. It is accurate as reported to the National Center on Intensive Intervention (NCII); it was not independently verified by NCII. Additional program evidence can be found on the [NCII Tools Chart](#) and might appear on the [What Works Clearinghouse](#). For specific questions about the content, contact Gander Publishing at <https://ganderpublishing.com/>, Customer Service at customerservice@ganderpublishing.com, or Tom Mendoza at tom.mendoza@lindamoobell.com.

Taxonomy Dimension: Strength

Strength tells us how well the program works for students with intensive intervention needs, expressed in terms of effect sizes. Effect sizes greater than 0.25 indicate an intervention has value in improving outcomes. Effect sizes of 0.35 to 0.40 are moderate, and effect sizes of 0.50 or larger are strong (preferred).

Exhibit 2 provides the effect sizes for students in need of intensive intervention organized by domain and subdomain. These effect size data are calculated on low-achieving participants, those falling at or below the 20th percentile on pretest measures of achievement. If available, additional effect sizes for disaggregated data can be found on the NCII Tools Chart.

Exhibit 2. The Seeing Stars Program: Symbol Imagery for Phonological and Orthographic Processing in Reading and Spelling Effect Sizes for Students \leq 20th Percentile by Domain and Subdomain

Domain	Subdomain	Outcome Measures	Effect size^a
Reading	Phonological Awareness	Lindamood Auditory Conceptualization Test, 3rd Edition	Unavailable
Reading	Orthographic Awareness	Symbol Imagery Test	Unavailable
Reading	Word Reading	Wide Range Achievement Tests, 3rd Edition	Unavailable
Writing	Spelling	Wide Range Achievement Tests, 3rd Edition	Unavailable
Reading	Word Attack	Woodcock Reading Mastery, Revised Edition	Unavailable
Language	Oral Directions	Detroit Tests of Learning Aptitude	Unavailable
Reading	Reading Accuracy	Gray Oral Reading Test, 4th Edition (GORT-4)	Unavailable
Reading	Reading Fluency	GORT-4	Unavailable
Reading	Paragraph Reading Rate	GORT-4	Unavailable
Reading	Comprehension	GORT-4	Unavailable
Reading	Vocabulary	Peabody Picture Vocabulary, 4th Edition (Form A)	Unavailable
Reading	Oral Reading Fluency	Dynamic Indicators of Basic Early Literacy Skills, 6th Edition	Unavailable
Reading	Phonemic Decoding Efficiency	Test of Word Reading Efficiency, 2nd Edition	Unavailable
Reading	Sight Word Efficiency	Test of Word Reading Efficiency, 2nd Edition	Unavailable
Reading	Word Identification	Woodcock Reading Mastery Test, 3rd Edition	Unavailable
Reading	Reading Skill index	Basic Reading Skills—Woodcock Johnson, 4th Edition	Unavailable
Reading	Basic Reading Skills	Woodcock Johnson, 4th Edition	Unavailable

Domain	Subdomain	Outcome Measures	Effect size^a
Reading	Letter-Word Identification	Woodcock Johnson, 4th Edition	Unavailable
Reading	Oral Reading	Woodcock Johnson, 4th Edition	Unavailable
Reading	Phonemic Decoding Efficiency	Test of Word Reading Efficiency, 2nd Edition	Unavailable
Reading	Reading Fluency	Woodcock Johnson, 4th Edition	Unavailable
Reading	Sentence Reading Fluency	Woodcock Johnson, 4th Edition	Unavailable
Reading	Sight Word Efficiency	Test of Word Reading Efficiency, 2nd Edition	Unavailable
Reading	Reading Index	Test of Word Reading Efficiency, 2nd Edition	Unavailable
Reading	Word Attack	Woodcock Johnson, 4th Edition	Unavailable
Reading	Reading Fluency Composite	Composite—Test of Word Reading Efficiency	Unavailable
Reading	Reading Fluency	Woodcock Johnson, 4th Edition	Unavailable
Reading	Basic Reading Skills	Woodcock Johnson, 4th Edition	Unavailable
Reading	Phonemic Decoding Efficiency	Test of Word Reading Efficiency, 2nd Edition	Unavailable
Reading	Word Attack	Woodcock Reading Mastery Test, 3rd Edition	Unavailable
Reading	Word Identification	Woodcock Reading Mastery Test, 3rd Edition	Unavailable
Reading	Sight Word Efficiency	Test of Word Reading Efficiency, 2nd Edition	Unavailable

^a To ensure comparability of effect size across studies, NCII uses a standard formula to calculate effect sizes across all studies and outcome measures—Hedges *g*, corrected for small-sample bias.

Taxonomy Dimension: Dosage

Dosage is the number of opportunities a student has to respond or practice and receive corrective feedback. Dosage may be impacted by the size of the instructional group, the number of minutes each session lasts, the number of student-teacher interactions built into lessons, and the number of sessions provided per week.

Assuming a group size of five students, each student in the group has an estimated 30 opportunities to respond and receive corrective feedback.

Taxonomy Dimension: Alignment

Alignment (Exhibit 3) focuses on how well the program (a) addresses the target student’s full set of academic skill deficits, (b) does not address skills the target student has already mastered (extraneous skills for that student), and (c) incorporates a meaningful focus on grade appropriate curricular standards.

Exhibit 3. Alignment With Content Areas Addressed

Instructional grade level(s)	Content area addressed	Skill strands
Kindergarten	Reading Foundational Skills	<ul style="list-style-type: none"> ▪ Print Concepts ▪ Phonological Awareness ▪ Phonics and Word Recognition ▪ Fluency
Grade 1	Reading Foundational Skills	<ul style="list-style-type: none"> ▪ Print Concepts ▪ Phonological Awareness ▪ Phonics and Word Recognition ▪ Fluency
Grade 2	Reading Foundational Skills	<ul style="list-style-type: none"> ▪ Phonics and Word Recognition ▪ Fluency
Grade 3	Reading Foundational Skills	<ul style="list-style-type: none"> ▪ Phonics and Word Recognition ▪ Fluency
Grade 4	Reading Foundational Skills	<ul style="list-style-type: none"> ▪ Phonics and Word Recognition ▪ Fluency
Grade 5	Reading Foundational Skills	<ul style="list-style-type: none"> ▪ Phonics and Word Recognition ▪ Fluency
Grade 6	Reading Literature and Informational Text	<ul style="list-style-type: none"> ▪ Fluency
Grade 7	Reading Literature and Informational Text	<ul style="list-style-type: none"> ▪ Fluency

Taxonomy Dimension: Teaching to Promote Transfer

Attention to transfer is the extent to which an intervention is designed to help students (a) transfer the skills they learn to other formats and contexts and (b) realize connections between mastered and related skills.

For reading consonant-vowel-consonant words (CVC; instructional target), three activities designed to explicitly teach for transfer are student air writing, using symbol imagery exercises, and using Socratic questioning students' erroneous responses.

Activity 1: Student Air Writing. Removing the visual stimulus and having students write imaged letters in the air develops their symbol imagery/orthographic processing, which is the necessary sensory cognitive process underscoring all decoding/spelling and writing tasks. By stabilizing symbol imagery (orthographic mapping), students can transfer that skill to spelling words consistent with regular spelling patterns at the single syllable and multisyllable levels as well as words with irregular spelling patterns.

Activity 2: Phonetically and Orthographically Track Simple Syllables, Complex Syllables, and Multi Syllables. Provide students with direct instruction and repetitive practice for auditorily processing sounds in words, blending, manipulating, identifying, adding, omitting, and substituting all known sounds in various combinations of vowels (V) and consonants (C): CV/VC-CVC, CCV, VCC, and CCVCC syllables and multisyllable words. Reinforce common phonics rules and expectancies to reading and spelling, such as Final-e and Open/Closed Syllable; Two Vowels Go Walking; and -ay, -tch, -dge, -ck, and -ight, as well as when to use “c” vs. “s” and “g” vs. “j.”

**Taxonomy Dimension:
Comprehensiveness**

Comprehensiveness is the number of explicit instruction principles the intervention incorporates (e.g., providing explanations in simple, direct language; modeling efficient solution strategies instead of expecting students to discover strategies on their own; providing practice so that students use the strategies to generate many correct responses; and incorporating systematic cumulative review). Additional information can be found within the NCII [Explicit Instruction course content materials](#).

Dimension: Provide Explanations in Simple, Direct Language

Activity 1: Setting the Climate

(Exhibit 4) briefly explains to students what they will be doing and why, drawing and talking at the same time to illustrate expectations in an upcoming task, with the teacher saying: “I am going to teach you to see sounds and letters in your imagination. It will help you read and spell better, and here’s how you picture that.”

Exhibit 4. Setting the Client Example



Activity 2: Image and Say Sounds and Letters (Exhibit 5) includes the teacher showing the letter card for a few seconds and then takes it away with the student imaging, saying letter name/sound, and air writing. The teacher says: “After I take this card away, say the letter name and sound as you write the letter in the air.”

Exhibit 5. Sounds and Letters Example



Dimension: Provide Practice So That Students Use the Strategies to Generate Correct Responses

Activity 1: Socratic questioning (Exhibit 6) of student errors to promote self-correction: Find a spot in the student’s response from which to positively engage the student and socratically asks questions to help the student analyze the response and help the student compare his/her response to the stimulus.

Exhibit 6. Socratic Questioning Example



Activity 2: Miscalling for Monitoring (Exhibit 7). Miscalling explicitly develops the student’s use of symbol imagery (orthographic processing) to self-correct errors. The teacher makes an error and prompts the student to take the teacher’s role and correct the error.

Exhibit 7. Miscalling Example



Dimension: Model Efficient Solution Strategies

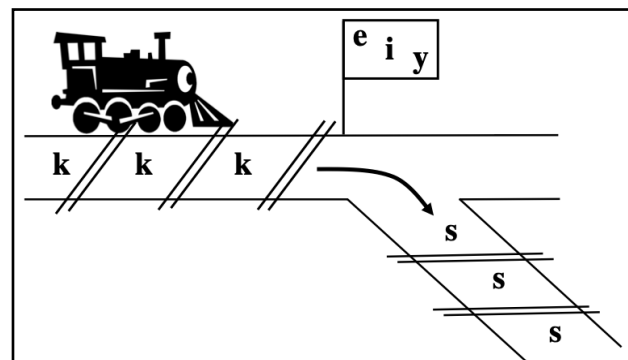
Activity 1: Teaching Basic Spelling Rules Using Orthographic Spelling Patterns (Exhibit 8). The teacher introduces the most frequent spelling rules, such as the Final -e rule, the Two Vowels Go Walking rule, and C and G expectancies. The teacher demonstrates through a Socratic discovery process while drawing and explains, “Two vowels go walking and the first one does the talking.”

Exhibit 8. Spelling Patterns Example



Activity 2: C-Rule (Exhibit 9). The teacher demonstrates through a Socratic discovery process while drawing and explains, “When ‘c’ is followed by ‘i,’ ‘e,’ or ‘y,’ it says the /s/ sound, as in city, cent, and cycle.”

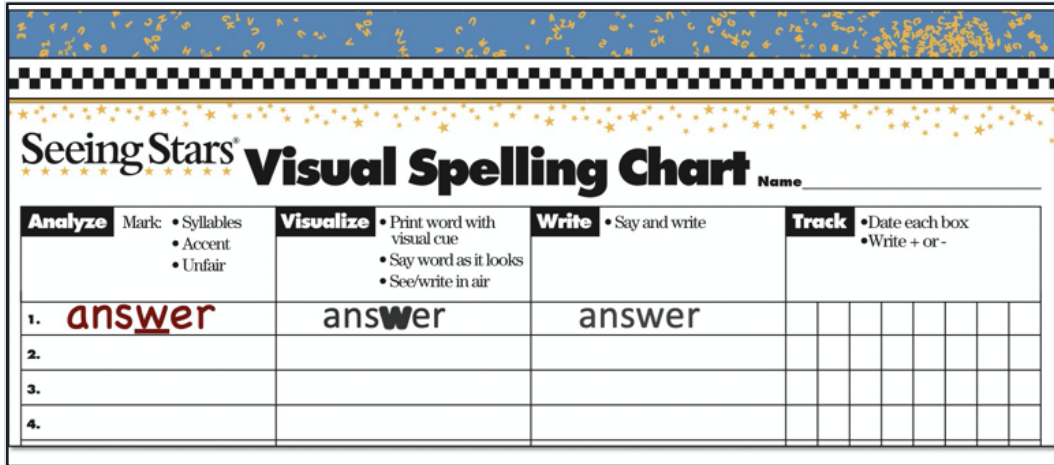
Exhibit 9. The C Rule



Dimension: Incorporate Systematic Cumulative Review

Activity 1: Visual Spelling Chart (Exhibit 10). The Seeing Stars Visual Spelling Chart introduces the task of spelling as an integration of sensory-cognitive functions, and by developing phonological and orthographic processing for spelling, students can place orthographic patterns in their memory. The chart facilitates the Analyze/Visualize/Write technique, with the teacher writing in the first and second columns, and student analyzing and noting the irregular part of the word and then writing the word in the last column.

Exhibit 10. Visual Spelling Chart Example



The image shows a 'Seeing Stars Visual Spelling Chart' with a decorative header featuring a blue background with yellow stars and a black and white checkered border. The title 'Seeing Stars Visual Spelling Chart' is prominently displayed, followed by a line for the student's name. Below the title, there are four main columns with instructions: 'Analyze' (Mark: Syllables, Accent, Unfair), 'Visualize' (Print word with visual cue, Say word as it looks, See/write in air), 'Write' (Say and write), and 'Track' (Date each box, Write + or -). The first row is filled with the word 'answer' in the 'Analyze' and 'Visualize' columns, and 'answer' in the 'Write' column. The 'Track' column contains a grid of boxes for dates and corrections. The remaining three rows are empty for practice.

Analyze	Visualize	Write	Track
1. answer	ans W er	answer	
2.			
3.			
4.			

Activity 2: Image, Read, and Spell Multisyllabic Words (Exhibit 11). After stabilizing single-syllable processing, explicit instruction in multisyllable symbol imagery (orthographic processing) and decoding is needed to ensure decoding accuracy and self-correction at the multisyllabic level. The teacher introduces breaking rules/tips for multisyllabic words.

Exhibit 11. Multisyllabic Words Example

5

open/closed syllables and doubling

Date: _____

Helpful hints for multisyllables:

- ★ A closed syllable is a syllable that ends in a consonant and the vowel may be short (does not say its name).
A consonant closes in the vowel so it can't say its name!
sit lit\tle bub\ble cat bug\gle ruf\fle
- ★ An open syllable is a syllable that ends in a vowel and the vowel is long (says its name).
A vowel at the end of the syllable (with no "protection" from a consonant) usually has to say its name!
hi ta\ble bu\gle she go ma\ple ri\fle
- ★ Try to start a syllable with a consonant.
tap\ple sta\ble di\ning di\ner din\ner
- ★ Double the consonant to keep the vowel short.
win win\ning fan fan\ning pat pat\ting beg beg\ging
- ★ Multisyllable words have *accented* syllables. Hum these words and hear the accent!
ta\ble lit\tle dim\mer ba\na\na

Practice: Find the suffix, pencil break the word, underline the vowel in the first syllable and decide if the vowel is open or closed. Mark the letter O for an open syllable and the letter C for a closed syllable. Then read the word, cover it, and air-write it!

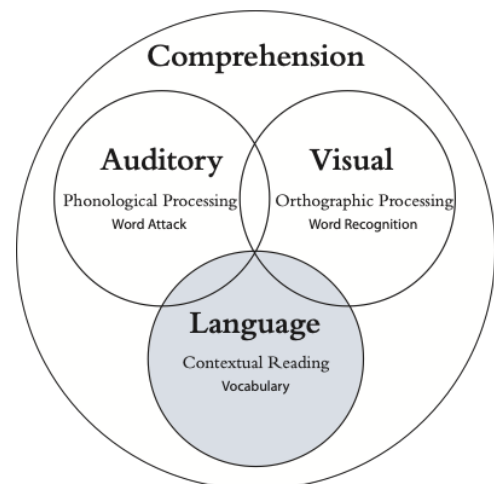
1. middle _____	6. tumble _____	11. grumble _____
2. midle _____	7. tabble _____	12. bable _____
3. fiddle _____	8. table _____	13. bobbing _____
4. fidle _____	9. stable _____	14. pinning _____
5. haggle _____	10. stabble _____	15. winning _____

Activity 3: Integration for Contextual Reading Fluency and Comprehension (Exhibit 12). As students stabilize phonological and orthographic processing in single syllables and establish some sight words, they overlap into contextual reading at an easy reading level. The teacher introduces contextual reading using short, self-contained paragraphs at an easy reading level, scaffolding in difficulty as students increase rate.

Taxonomy Dimension: Behavioral Support

Behavioral support addresses the extent to which the program incorporates (a) self-regulation and executive function components and (b) behavioral principles to minimize undesired behavior. Additional information can be found within the [NCII behavioral support course content](#).

Exhibit 12. Contextual Fluency



Activity 1: Nonverbal Behavior Modification Tools/Reinforcement (Exhibit 13). Every student has a bucket/jar for storing Magic Stones (or any other small objects, e.g., beans, tokens) to reinforce positive behavior. Take away stones when behavior needs to be redirected. Stones may be traded in for Star Cards or a prize immediately after the bucket is full. Stones should be given frequently and consistently.

Exhibit 13. Reinforcement Example



Activity 2: Magical Learning Moment Cards (Exhibit 14). On-the-spot recognition is given to a student to recognize effort and tasks done well. Cards go in the Magical Learning Moment box, and a schedule for drawing a winner is set. If possible, coordinate with the principal to make an announcement.

Exhibit 14. Learning Moment Card Example



Activity 3: Progress Monitoring Charts/Instructional Records (Exhibit 15). Real-time progress monitoring documents instruction and notes errors and areas of difficulty as well as when tasks are too easy.

Exhibit 15. Progress Monitoring Example

VC and CV		CVC			
Syllable Card Box 1	Decoding Workbook 1	Syllable Card Box 2	Decoding Workbook 2		
Syllable Board/Air-writing		Syllable Board/Air-writing			
<ul style="list-style-type: none"> short vowels and oo open syllable confinal e 2 vowels go walking 	<ul style="list-style-type: none"> ay g rule c rule schwa 	<ul style="list-style-type: none"> g rule dge lch y 	<ul style="list-style-type: none"> dge lch y 		
CCV and VCC		CCVC and CVCC		CCVCC	
Syllable Card Box 3	Decoding Workbook 3	Syllable Card Box 4	Decoding Workbook 4	Syllable Card Box 5	Decoding Workbook 5
Whkk 3	Syll. Board/A-W	Syllable Board/Air-writing		Syllable Board/Air-writing	
<ul style="list-style-type: none"> past tense doubling ph 	<ul style="list-style-type: none"> ph 	<ul style="list-style-type: none"> ly lch tion turo mem ous ic al 	<ul style="list-style-type: none"> pre pro per por re ive ive tion 	<ul style="list-style-type: none"> ace all on ial ial 	<ul style="list-style-type: none"> lch ly lch ly
3. Star Word Reading: 100 ___ 300 ___ 500 ___ 700 ___ 900 ___ 200 ___ 400 ___ 600 ___ 800 ___ 1000 ___					
4. Multisyllables: Multisyllables Introduction to Multisyllables <ul style="list-style-type: none"> syllable counting basic suffixes where to break open/closed rule across schwa 		2 syllables Syllable Card Box 5 Decoding Workbook 5 Syllable Board/Air-writing		2-3 syllables Syllable Card Box 6 Decoding Workbook 6 Syllable Board/Air-writing	
5. Graded Reading: P ___ 2 ___ 4 ___ 6 ___ 9-12 ___ 1 ___ 3 ___ 5 ___ 7-8 ___ College/Adult ___		3-5 syllables Syllable Card Box 5 Whkk 5 <ul style="list-style-type: none"> lch ly lch ly 			
6. Star Word Spelling: 100 ___ 300 ___ 500 ___ 700 ___ 900 ___ 200 ___ 400 ___ 600 ___ 800 ___ 1000 ___					

Activity 4: Instructional Planning and Pacing (Exhibit 16). Based on student data, groups are formed homogeneously, and an instructional plan is formed with instructional records capturing student responses that are regularly reviewed to assess each task on the lesson plan and adjust for relevancy to the student’s goals collectively and individually. Does the current task match the goals for instruction? Has the student’s performance changed? What works for the group?

Exhibit 16. Instructional Planning Example

INSTRUCTIONAL PLANNING WORKSHEET	
Group:	Inst. Leader: _____ Teacher(s): _____
School:	Students: _____
INSTRUCTIONAL PLAN	
Program:	<input type="checkbox"/> SI [™] <input type="checkbox"/> SI [™] /LPS [®] <input type="checkbox"/> LPS [®] /SI [™] <input type="checkbox"/> VV [®] <input type="checkbox"/> OCN [™] Math
Dates of Instruction:	Number of Weeks: _____
Time per Day: _____	Days per Week: _____ Re-test Date: _____
DATE	GOALS FOR THIS INSTRUCTIONAL PERIOD
Final Goal	_____
Mid-way Goal	_____
20 Hours	_____
40 Hours	_____
60 Hours	_____
80 Hours	_____
100 Hours	_____
120 Hours	_____
140 Hours	_____
160 Hours	_____
180 Hours	_____
200 Hours	_____
Follow-up Comments: _____	