Agenda

- describe the reading, writing, and math skills students are expected to master at specific grade levels;
- discuss the cognitive processes that are critical to acquisition of reading, writing, and math skills;
- describe how to choose an intervention based on analysis of student’s performance of a skill and mastery of cognitive processes needed to perform the skill.
Source of Information


What is PAL-II?

- *PAL-II Reading and Writing* and *PAL-II Math* are comprehensive, research-based assessment systems.
- The instruments can be used at three tiers ranging from prevention to problem-solving consultation to differential diagnosis.
- *PAL-II Reading and Writing* links to targeted evidence-based interventions and lessons.
The Three Tier Model

Tier 1: Preventing reading, writing, and math problems through early intervention

Tier 2: Solving reading, writing, and math problems through problem-solving consultation linked to reason(s) for referral

Tier 3: Treating reading, writing, and math problems through differential diagnosis and treatment planning

Skills and Related Cognitive Processes

Reading, Writing, Math
Reading Skills

- Phonological Decoding
- Morphological Decoding
- Silent Reading Fluency

Reading: Subword Processes

A. Phonological Awareness
B. Orthographic Awareness
C. Alphabet Principle
D. Syllable Awareness (onset-rime and syllable types)
Reading: Word Processes

A. Word Specific Mechanism
   1. Accuracy
   2. Automaticity

B. Phonological Decoding Mechanism
   1. Accuracy
   2. Automaticity

C. Morphological Awareness
   1. Compound words
   2. Syllable segmentation (oral and written)
   3. Roots
   4. Modification of roots w/affixes
   5. Morpho-phonemic transformations of words
   6. Stress and intonational patterns and their relationship to spelling rules

D. Semantic awareness (vocabulary)
Reading: Text Processes

A. Oral Reading
   1. Accuracy
   2. Rate
   3. Fluency
   4. Comprehension

B. Silent Reading
   1. Comprehension
   2. Rate

C. Comprehension
   1. Background knowledge
   2. Language Processes
   3. Cognitive Processes
   4. Meta-cognitive strategies for comprehension monitoring and self-regulation of the reading process
Writing Skills

- Handwriting
- Orthographic Spelling
- Composition

Writing Processes

Transcription Skills
- Handwriting
- Spelling

Text Generation
- Planning
- Translating
- Reviewing/Revising
Reading and Writing-Related Processes

- Orthographic Coding
- Phonological Coding
- Morphological/Syntactic Coding
- Verbal Working Memory
- RAN/RAS
- Oral Motor Planning
- Finger Sense

Math Skills

- Oral Counting
- Fact Retrieval
- Computation Operations
- Place Value
- Part-Whole Relationships
- Multi-Step Problem-Solving
Math-Related Processes

- Numeral Writing
- Numeric Coding
- Quantitative Working Memory
- Spatial Working Memory
- RAN (Digits and Double Digits)
- RAS (Words and Digits)
- Fingertip Writing

Preventing Reading, Writing, and Math Problems

Tier 1: Early Intervention
# Process Assessment of the Learner-II

Gloria Maccow, Ph.D., Assessment Training Consultant

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## Step 1: Universal Screening for At-Risk Readers

<table>
<thead>
<tr>
<th>Grade</th>
<th>All Students Screened for These Skills in Core General Education Curriculum</th>
<th>Screening Tests for All Students</th>
</tr>
</thead>
</table>
| K     | • Accuracy of letter naming  
         • Rhyming  
         • Syllable and onset phoneme segmentation for spoken words  
         • Naming 26 lower case letters in random order (WIAT-III Word Reading items 4–20)  
         • PAL-II Rhyming, Syllables, Phonemes for Kindergarten level  | Note: WIAT-III replaced WIAT-II |
| 1     | • Accuracy of reading real words on a list (pronouncing words without context clues)  
         • Accuracy of reading pseudowords on a list (phonological decoding without semantic cues)  
         • WIAT-II Word Reading  
         • PAL-II Pseudoword Decoding  | |
| 2     | • Accuracy and rate of reading real words orally on a list  
         • Accuracy and rate of reading pseudowords orally on a list  
         • PAL-II Morphological Decoding  
         • PAL-II Pseudoword Decoding  | |
| 3     | • Accuracy and rate of reading real words orally on a list  
         • Accuracy and rate of reading pseudowords orally on a list  
         • Silent decoding  
         • Silent reading fluency  
         • PAL-II Morphological Decoding Fluency  
         • PAL-II Pseudoword Decoding  
         • PAL-II Find the True Fixes  
         • PAL-II Sentence Sense  | |
| 4 and above | • Word comprehension  
         • Sentence comprehension  
         • Paragraph comprehension  
         • WISC-IV Vocabulary  
         • PAL-II Sentence Sense  
         • WIAT-II Reading Comprehension  | |

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## Step 3: Response to Early Intervention for Reading

<table>
<thead>
<tr>
<th>Grade</th>
<th>Additional Assessment to Pinpoint Processing Deficits in At-Risk Readers</th>
<th>Early Intervention for At-Risk Readers (Step 2)</th>
<th>Progress Monitoring for At-Risk Readers</th>
</tr>
</thead>
</table>
| K     | • PAL-II Alphabet Writing and Task A—Sentence Copying  
         • CELF-4 RAN Color Naming, Shape Naming, Shape-Color Naming (do not use RAN for letters)  | • Big Strokes for Little Folks (letter writing and naming)  
         • PAL Intervention Guides (1998) Phonological Lessons  | Repeat screening measures in Step 1 and measures in first column of Step 3 after intervention is completed. |
| 1     | • PAL-II Orthographic Coding, Phonological Coding (Syllables and Phonemes), RAN-Letters and –Letter Groups  
         • WISC-IV Vocabulary (Refer children who fall below standard score of 8 to speech and language specialist for screening for language learning disability)  | • PAL (2003) Lesson Set 1 for accuracy and rate of reading monosyllabic words  
         • PAL Lesson Set 2 for accuracy and rate of reading polysyllabic words  
         • PAL Lesson Set 11 for linguistic awareness, decoding, fluency, and comprehension in beginning reading  | Give progress monitoring in PAL Lessons and plot on growth graphs in PAL Lessons Reproducibles. Repeat screening measures in Step 1 and measures in first column of Step 3 after intervention is completed. |
| 2     | • PAL-II Orthographic Coding, Phonological Coding (Syllables and Phonemes), RAN-Letters, –Letter Groups, and –Words  
         • WISC-IV Vocabulary (Refer children who fall below standard score of 8 to speech and language specialist for screening for language learning disability)  | • PAL (2003) Lesson Sets 6 and 9 for reading structure and function words, reading fluency, word, sentence, and text comprehension  | Give progress monitoring in PAL Lessons and plot on growth graphs in PAL Lessons Reproducibles. Repeat screening measures in Step 1 and measures in first column of Step 3 after intervention is completed. |

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### Step 1: Universal Screening for At-Risk Writers

<table>
<thead>
<tr>
<th>Grade</th>
<th>All Students Screened for These Skills in Core General Education Curriculum</th>
<th>Screening Tests for All Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>K</td>
<td>• Accurate, Legible Letter Writing • Legible and Automatic Letter Writing&lt;br&gt;From Memory and From Models&lt;br&gt;Narrative Compositional Fluency (number of words within time limit)</td>
<td>• PAL-III Task A—Sentence Copying&lt;br&gt;• PAL-III Alphabet Writing&lt;br&gt;• PAL-III Task B—Paragraph Copying&lt;br&gt;• PAL-III Narrative Compositional Fluency&lt;br&gt;• PAL-III Spelling</td>
</tr>
<tr>
<td>1</td>
<td>• Legible and Automatic Letter Writing From Memory and Model&lt;br&gt;Spelling&lt;br&gt;Narrative Compositional Fluency</td>
<td>• PAL-III Task A—Sentence Copying&lt;br&gt;• PAL-III Task B—Paragraph Copying&lt;br&gt;• PAL-III Narrative Compositional Fluency&lt;br&gt;• PAL-III Spelling</td>
</tr>
<tr>
<td>2</td>
<td>• Legible and Automatic Alphabet Writing From Memory&lt;br&gt;Spelling&lt;br&gt;Narrative Compositional Fluency</td>
<td>• PAL-III Task A—Sentence Copying&lt;br&gt;• PAL-III Task B—Paragraph Copying&lt;br&gt;• PAL-III Narrative Compositional Fluency&lt;br&gt;• PAL-III Spelling</td>
</tr>
<tr>
<td>3</td>
<td>• Legible and Automatic Alphabet Writing From Memory&lt;br&gt;Spelling&lt;br&gt;Narrative Compositional Fluency</td>
<td>• PAL-III Task A—Sentence Copying&lt;br&gt;• PAL-III Task B—Paragraph Copying&lt;br&gt;• PAL-III Narrative Compositional Fluency&lt;br&gt;• PAL-III Spelling</td>
</tr>
<tr>
<td>4 and above</td>
<td>• Legible and Automatic Alphabet Writing From Memory&lt;br&gt;Spelling&lt;br&gt;Connections Between Note Taking and Report Writing</td>
<td>• PAL-III Task A—Sentence Copying&lt;br&gt;• PAL-III Task B—Paragraph Copying&lt;br&gt;• PAL-III Narrative Compositional Fluency&lt;br&gt;• PAL-III Spelling</td>
</tr>
</tbody>
</table>

**Note:** WIAT-III replaced WIAT-II

### Step 3: Response to Early Intervention for Writing

<table>
<thead>
<tr>
<th>Grade</th>
<th>Additional Assessment to Pinpoint Processing Deficits in At-Risk Writers</th>
<th>Early Intervention for At-Risk Writers (Step 2)</th>
<th>Progress Monitoring for At-Risk Writers</th>
</tr>
</thead>
<tbody>
<tr>
<td>K</td>
<td>• PAL-III Orthographic Coding&lt;br&gt;• PAL-III Finger Repetition&lt;br&gt;• PAL-III Finger Succession</td>
<td>• Big Strokes for Little Folks to develop accuracy of letter formation</td>
<td>Repeat screening measures in Step 1 and measures in first column of Step 3 after intervention.</td>
</tr>
<tr>
<td>1</td>
<td>• PAL-III Receptive Coding&lt;br&gt;• PAL-III Word Choice&lt;br&gt;• PAL-III Syllables&lt;br&gt;• PAL-III Phonemes&lt;br&gt;• PAL-III RAN-Letters&lt;br&gt;• PAL-III Finger Repetition&lt;br&gt;• PAL-III Finger Succession</td>
<td>• PAL (2003) Lesson Set 3 for automatic letter production and composing</td>
<td>Give progress monitoring in PAL Lessons and plot on growth graphs in PAL Lessons Reproducibles. Repeat screening measures in Step 1 and measures in first column of Step 3 after intervention is completed.</td>
</tr>
<tr>
<td>2</td>
<td>• PAL-III Receptive Coding&lt;br&gt;• PAL-III Word Choice&lt;br&gt;• PAL-III Syllables&lt;br&gt;• PAL-III Phonemes&lt;br&gt;• PAL-III RAN-Letters and Letter Groups&lt;br&gt;• PAL-III Finger Repetition&lt;br&gt;• PAL-III Finger Succession</td>
<td>• PAL (2003) Lesson Sets 4 and 5 for spelling monosyllabic and polysyllabic words and composing</td>
<td>Give progress monitoring in PAL Lessons and plot on growth graphs in PAL Lessons Reproducibles. Repeat screening measures in Step 1 and measures in first column of Step 3 after intervention is completed.</td>
</tr>
</tbody>
</table>
Tier 1 Lesson Set 1

Beginning Reading 1

Schema for Lesson Set 1, Tier 1

Subword Level

- Target Skill: Letter(s) - phoneme correspondences in alphabetic principle (spelling to phoneme direction)
- Materials: Talking Letters Student Desk Guide
- Estimated Time: 10 minutes

Word Level

- Target Skill: Application of alphabetic principle to monosyllabic word reading
- Materials: Teacher-constructed word card deck (from Lists 1 and 2)
- Estimated Time: 10 minutes
Schema for Lesson Set 1, Tier 1

Text Level
- Target Skill: Story Reading: oral reading and reading for personal meaning
- Materials: Beginning paperback books
- Estimated Time: 10 minutes

Instructional Materials
- Talking Letters Student Desk Guide for each student
- Word families list (ild and old word families)
- Word card deck constructed from List 1 and List 2 (in the Reproducible Instructional Materials)
- Beginning-level paperback books. Use the following 12 first-grade reading level books or comparable substitutes
Tier 1 Lesson Set 1

Beginning Reading 1

- *Itchy, Itchy Chicken Pox* by Grace Maccarone, Scholastic.
- *Monkey See, Monkey Do* by Marc Gave, Scholastic.
- *At the Carnival* by Kirsten Hall, Scholastic.
- *I See a Bug* by Kirsten Hall, Scholastic.
- *Buzz Said the Bee* by Wendy Cheyette Lewison, Scholastic.
- *Here Comes the Snow* by Angela Shelf Medaris, Scholastic.
- *Bubble Trouble* by Mary Packard, Scholastic.
- *A Bad, Bad Day* by Kirsten Hall, Scholastic.
- *We Play on a Rainy Day* by Angela Shelf Meadows, Scholastic.
- *I'm a Seed* by Jean Marzollo, Scholastic.

Talking Letters

Consonants

- b, c, d, f, g, h, j, k, l
- m, n, p, r, s, t, v, w, y, z
- bl, br, cl, cr, dr, fl, fr, gl, gr, sc, sk
- sl, pl, pr, qu, x, sm, sn, sp, st, sw
- tr, tw, sh, ck, ch, ng, wh, th, th, ph
- d, g, w, r, kn, mb
Accuracy and Rate of Reading Monosyllabic Words

Tier 1 Lesson Set 1
Beginning Reading 1

Progress Monitoring

- Lists 3 and 4, Transfer words (in the Reproducible Instructional Materials)
- Growth Graph 1 (in the Reproducible Instructional Materials)
- Attention/Motivation Ratings (in the Reproducible Instructional Materials)
Introduce Talking Letters Using these Instructions:

“These pictures will give you clues about the sounds that go with one or two letters. Look where I am pointing, 1st to 1 or 2 letters, and then to a picture.”

“Listen while I name the pictured word and then make the target sound in the pictured word that goes with the letter or letters. When I say, ‘Your Turn,’ you repeat what I did and said.”
Tier 1 Lesson Set 1

**Instructions Subword Level**

Practice these Talking Letters.
Consonant side: Introduce the first two rows (one letter consonants).

**Talking Letters**

Consonants

```
  b  c  d  f  g  h  j  k  l
  m  n  p  r  s  t  v  w  y  z
```

Tier 1 Lesson Set 1

**Instructions Word Level**

Teacher:
Point to each spelling unit. Name the letter.
Say the sound that goes with the spelling unit.

Student:
Look and listen as teacher demonstrates.
Then, point, name, say.

One student in group:
Sound out whole word, unit by unit.
Put sounds together to name the word.
Tier 1 Lesson Set 1

Instructions Word Level

If designated child cannot synthesize the sounds to name the whole word, turn over the card where whole word is written
- Teacher names each letter in the word
- Teacher pronounces the name of the whole word
- Student names each letter in the word
- Student pronounces the name of the whole word
- Whole group names each letter, makes the sound and names the whole word

---

Tier 1 Lesson Set 1

Text Level

Choral Reading of chosen level book
- Teacher and students read text together in parallel, with teacher leading and students following as in dancing with a partner or singing led by a choral director.

Reading for Meaning. Discuss the book
- What did students like & dislike
- What did they find surprising or funny
- Goal: to encourage reading for pleasure & give the child permission to have feelings about what is communicated in written language.
Tier 1 Lesson Set 1

**Progress Monitoring**

Curriculum Based Assessment
- Word Lists from Reproducible Instructional Materials (RIM)
- Plot % correct on Growth Graph (in Reproducible Materials)

Tier 1 Lesson Set 2

**Beginning Reading 2**

Designed for students who are still not reading single real words and single pseudowords at grade level after completing Lesson Set 1.
Tier 1 Lesson Set 2
Beginning Reading 2

Lesson Set 1
Subword Level
Most Talking Letters introduced

Lesson Set 2
Subword Level
Talking Letters

Lesson Set 1
Word Level
High frequency 1st grade monosyllabic words only

Lesson Set 2
Word Level
High frequency 2nd grade polysyllabic words only
Speaking Syllables
Vowels in open syllables
“le” syllables
Schwa syllables
Tier 1 Lesson Set 2

**Beginning Reading 2**

**Lesson Set 1**

**Text Level**
Discussion emphasizes personal meaning children gain from the text

**Lesson Set 2**

**Text Level**
Discussion emphasizes author’s intended meaning

Tier 1 Lesson Set 3

**Handwriting Legibility & Automaticity**

- Ability to write alphabet letters legibly and quickly is the best predictor of composition length and quality across the elementary grades.
- Validated on mid-1st graders
- Student is asked to practice writing the alphabet just once per session
  - extra 2 lines are for repeated practice in additional lessons if necessary, after 24 lessons completed
Lessons for Handwriting

- Students learn to form letters correctly.
- Students practice committing letters to automatic pilot. They practice writing the letters from memory.
- Students use letters to write a short composition.

Tier 1 Lesson Set 3
Handwriting Legibility and Automaticity

Schema for Lesson Set 1, Tier 1
Subword Level

- Target Skill: Writing each of 26 letters once, using numbered arrow cues, across sessions that increase time delay for writing letters from memory
- Materials: PAL Handwriting Lessons and pencils without eraser
- Estimated Time: 10 minutes
Tier 1 Lesson Set 3
Handwriting Legibility and Automaticity

Schema for Lesson Set 1, Tier 1

**Word Level**
- Target Skill: Using letters to write words
- Materials: Set of 3 words (provided in the daily lesson plans) and pencils without erasers
- Estimated Time: 5 minutes or less

**Text Level**
- Target Skill: Composing for 5 minutes in teacher-provided topics and sharing compositions with classmates
- Materials: Grade-appropriate lined paper, pencils without erasers, and PAL composing topics
- Estimated Time: 5 minutes to compose, and, depending on size of group, 5-10 minutes for sharing
Tier 1 Lesson Set 3
Handwriting Legibility and Automaticity

Instructional Materials
- Photocopied PAL Handwriting Lessons
- 3”x5” card for each student to use (to cover model when prompted).
- Pencils without erasers
- Words written on word card for student to copy.
- Photocopied PAL Handwriting Lesson with compositional prompts and grade-appropriate, lined composing paper for each student.

Student is asked to practice writing the alphabet just once per session (continued)
- Given visual cues to show how to make each letter
- Given repeated verbal cues
- Write letters from memory after a short delay that increases as lessons progress
- Pencils do not have erasers
Tier 1 Lesson Set 3
Handwriting Legibility & Automaticity

- Student always composes immediately after handwriting, then shares their composition with classmates.
  - Transfers low level letter writing to high level composing
  - Even if have trouble putting thoughts on paper, they love to share their ideas. This becomes a motivational hook.
  - Each child reads own composition.
- Lessons NOT designed to be independent seatwork
Tier 1 Lesson Set 3
Handwriting Legibility & Automaticity

Word Level
Copy these words as accurately and quickly as you can:

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
</table>
| red | white | blue | (12 letters)
Lessons for Handwriting

Tier 3 Lesson Set 11

Becoming a Functional Reader

Schema for Lesson Set 11, Tier 3

Subword Level

- Phonological Awareness
- Orthographic Awareness
- Alphabetic Principle
- Morphological Awareness
Schema for Lesson Set 11, Tier 3

Read Motivational Statement "I Can Learn to Read!" (presented on the cover of progress monitoring folder)

Subword Level

Phonological Awareness
Clap syllables and finger count phonemes in spoken jabberwocky words. 3 minutes (Sound Games)

Orthographic Awareness
Look at each letter in a jabberwocky word, cover the word up, tell (or write) a designated letter or letters in the visual word form in the mind’s eye. 2 minutes (Looking Games)

Alphabetic Principle
Use Talking Letters to decode the same jabberwocky words as used for the Sound Games and Looking Games. 5 minutes

Morphological Awareness
Inflectional suffixes that indicate past tense, plurality, comparison; and compound words. Introduce these as words that are encountered in text reading (refer to Meaning Makers in Personal Dictionary).

Tier 3 Lesson Set 11
Becoming a Functional Reader

Schema for Lesson Set 11, Tier 3

Word Level
- Jabberwocky Words
- Word Families
- Word Specific Learning
Tier 3 Lesson Set 11
Becoming a Functional Reader

Schema for Lesson Set 1, Tier 1

Text Level
- **Target Skill**
  Teacher-guided oral reading of selected passages in chapter book or other reading material.
- **Materials/Estimated Time:**
  - Frog and Toad Together: 20 minutes
  - Read Naturally stories: 10 minutes

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### Step 1: Universal Screening for Math

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<th>Screening Tests for All Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>K</td>
<td>• Accurate, legible numeral writing&lt;br&gt;• Oral counting forwards and 1-to-1 correspondence</td>
<td>• PAL–II Numerical Writing&lt;br&gt;• PAL–II Oral Counting (Task A)</td>
</tr>
<tr>
<td>1</td>
<td>• Automatic legible numeral writing&lt;br&gt;• Counting forwards and backwards by variable increments&lt;br&gt;• Paper-and-pencil written calculation</td>
<td>• PAL–II Numerical Writing&lt;br&gt;• PAL–II Oral Counting (Task A and B)&lt;br&gt;• WIAT–II Numerical Operations</td>
</tr>
<tr>
<td>2</td>
<td>• Automatic legible numeral writing&lt;br&gt;• Math fact fluency look-write addition and subtraction&lt;br&gt;• Paper and pencil written calculation</td>
<td>• PAL–II Numerical Writing&lt;br&gt;• PAL–II Fact Retrieval–Look and Write (Addition and Subtraction)&lt;br&gt;• WIAT–II Numerical Operations</td>
</tr>
<tr>
<td>3</td>
<td>• Automatic legible numeral writing&lt;br&gt;• Math fact fluency look-write addition and subtraction and Switching Addition and Subtraction&lt;br&gt;• Paper-and-pencil written calculation&lt;br&gt;• Math problem solving</td>
<td>• PAL–II Numerical Writing&lt;br&gt;• PAL–II Fact Retrieval–Look and Write (Addition, Subtraction, and Mixed Addition and Subtraction)&lt;br&gt;• WIAT–II Numerical Operations&lt;br&gt;• PAL–II Multi-Step Problem Solving</td>
</tr>
</tbody>
</table>

*Note: WIAT-III replaced WIAT-II*
### Step 1: Universal Screening for Math

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<th>All Students Screened for These Skills in Core General Education Curriculum</th>
<th>Screening Tests for All Students</th>
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</thead>
<tbody>
<tr>
<td>4</td>
<td>• Math fact fluency look-write multiplication and division</td>
<td>• PAL-II Fact Retrieval—Look and Write (Multiplication and Division)</td>
</tr>
<tr>
<td></td>
<td>• Paper and pencil written calculation</td>
<td>• WIAT-II Numerical Operations</td>
</tr>
<tr>
<td></td>
<td>• Math problem solving</td>
<td>• PAL-II Multi-Step Problem Solving</td>
</tr>
<tr>
<td>5 and 6</td>
<td>• Math fact fluency look-write multiplication and division and switching multiplication and division</td>
<td>• PAL-II Fact Retrieval—Look and Write (Multiplication, Division, and Mixed Multiplication and Division)</td>
</tr>
<tr>
<td></td>
<td>• Paper-and-pencil written calculation</td>
<td>• WIAT-II Numerical Operations</td>
</tr>
<tr>
<td></td>
<td>• Math problem solving</td>
<td>• PAL-II Multi-Step Problem Solving</td>
</tr>
</tbody>
</table>

*Note: WIAT-III replaced WIAT-II*

### Step 3: Response to Early Intervention for Math

<table>
<thead>
<tr>
<th>Grade</th>
<th>Additional Assessment to Pinpoint Processing Deficits in Children at Risk in Math</th>
<th>Early Intervention for Children at Risk in Math (Step 2)</th>
<th>Progress Monitoring for Children at Risk in Math</th>
</tr>
</thead>
<tbody>
<tr>
<td>K</td>
<td>• PAL-II Numeric Coding</td>
<td>• Numerical writing from models and memory</td>
<td>Repeat screening measures in Step 1 and measures in first column of Step 3 after intervention is completed.</td>
</tr>
<tr>
<td></td>
<td>• PAL-II Arithmetic</td>
<td>• Big Math for Little Kids</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• CELF-4 RAN Color and Shapes</td>
<td>• Counting and Sorting Activities with Manipulatives</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>• PAL-II Place Value</td>
<td>• Numerical writing from models and memory</td>
<td>Repeat screening measures in Step 1 and measures in first column of Step 3 after intervention is completed.</td>
</tr>
<tr>
<td></td>
<td>• PAL-II Numeric Coding</td>
<td>• Number lines on desk</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• PAL-II Quantitative Working Memory</td>
<td>• Scholastic 100 activities kids need to do by 1st grade</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• WISC-IV Arithmetic</td>
<td>• Place Value K-3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• PAL-II RAN—Single Digits</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>• PAL-II Place Value</td>
<td>• Numerical writing from models and memory</td>
<td>Repeat screening measures in Step 1 and measures in first column of Step 3 after intervention is completed.</td>
</tr>
<tr>
<td></td>
<td>• PAL-II Numeric Coding</td>
<td>• Number lines on desk</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• PAL-II Quantitative Working Memory</td>
<td>• Scholastic 100 activities kids need to do by grade 2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• WISC-IV Arithmetic</td>
<td>• Place Value K-3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• PAL-II RAN—Single Digits and Double Digits</td>
<td>• Listen-Say, Listen-Write, Look-Write, Look-Say</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• PAL-II Fingertip Writing</td>
<td>addition and subtraction</td>
<td></td>
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<td></td>
<td></td>
<td>fact fluency</td>
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<tr>
<td></td>
<td></td>
<td>• Flash Cards for Kids</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Aunty Math</td>
<td></td>
</tr>
</tbody>
</table>
First, give the child models with numbered arrows that show how to form the numeral in terms of which strokes to make and in what order to make them.

Second, when the child can form each of the 10 numerals legibly, move to activities that develop automatic numeral writing.

Third, ask child to write each of the 10 numerals (in a random numeric order) from dictation.

Fourth, ask the child to write the numeral(s) that come before and after other numerals.
Solving Reading, Writing, and Math Problems

Tier 2: Problem-Solving Consultation Linked to Reason for Referral

Responding to Referral for Reading Problem

1. Interview referring teacher.
2. Observe the child during reading instruction.
3. Administer standardized, normed subtests to identify the nature of the reading problem.
4. Administer process measures for deficient reading skills.
Responding to Referral for Reading Problem

5. Meet with the teacher again to clarify the nature of the problem based on a synthesis of the interview, classroom observations, and formal testing.

6. Schedule follow-up meeting at a time designated in the progress-monitoring plan.

Table 4.1 Subtests for Measuring Decoding and Processes Underlying Poor Decoding

<table>
<thead>
<tr>
<th>Subtest(s) Administered</th>
<th>Grade Level</th>
<th>Recommended PAL-II RW Subtests and Other Measures</th>
<th>Process(es) Underlying Low Scores on PAL-II RW Subtests and Other Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>WIAT-II Pseudoword Reading or PAL-II RW Pseudoword Accuracy (ability to translate units in written words into units of sound in spoken words so that the word can be pronounced)</td>
<td>1-3</td>
<td>Receptive Coding</td>
<td>The child has difficulty encoding written words into temporary memory and then segmenting units of the written word—wholes, single letters, letter clusters—in working memory.</td>
</tr>
<tr>
<td>Child experiences difficulty decoding written words that are pronounceable but have no meaning.</td>
<td></td>
<td>Syllables</td>
<td>The child has poor phonological awareness of the syllables in multi-syllabic spoken words.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Phonemes</td>
<td>The child has poor phonological awareness of the phonemes in spoken words.</td>
</tr>
</tbody>
</table>
## Results

<table>
<thead>
<tr>
<th>Scaled Score</th>
<th>Pseudoword Decoding</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Phonological awareness</td>
<td></td>
</tr>
<tr>
<td></td>
<td>✓ Syllables</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>✓ Phonemes</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>Orthographic awareness</td>
<td></td>
</tr>
<tr>
<td></td>
<td>✓ Receptive Coding</td>
<td>8</td>
</tr>
</tbody>
</table>

## Intervention

- **Improve phonological awareness - focus on syllables**
  - ✓ find a word hidden in a longer word
  - ✓ say the syllable missing from a word he’d heard
  - ✓ say a word without a part of the word
  - ✓ say a new word by substituting a given syllable for another

- **Small Group (3 students)**
- **Reading specialist**
- **30 minutes each day**
- **Monitor progress - assess 2x month**
- **Review in eight weeks**
Monitor Progress

Goal Statement
In 32.5 weeks, Winston Salem will achieve 97 Words Read Correct with 0 Errors from grade 2 Reading - Standard Progress Monitor Passages. The rate of improvement should be 2.03 Words Read Correct per week. The current average rate of improvement is 0.95 Words Read Correct per week.

<table>
<thead>
<tr>
<th>Date</th>
<th>10/15</th>
<th>10/31</th>
<th>11/14</th>
<th>11/28</th>
<th>12/12</th>
<th>01/16</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corrects</td>
<td>32</td>
<td>30</td>
<td>32</td>
<td>35</td>
<td>40</td>
<td>42</td>
</tr>
<tr>
<td>Errors</td>
<td>7</td>
<td>10</td>
<td>7</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Goal/Timed ROI</td>
<td>2.03/0.95</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Change Intervention

- Explicit instruction in translating printed words to spoken words
- Individual
- Reading specialist
- 30 minutes each day
- Monitor progress - assess 2x month
- Review in eight weeks
Monitor Progress

Goal Statement

In 32.6 weeks, Winston Salem will achieve 97 Words Read Correct with 0 Errors from grade 2 Reading - Standard Progress Monitor Passages. The rate of improvement should be 2.003 Words Read Correct per week. The current average rate of improvement is 0.98 Words Read Correct per week.

<table>
<thead>
<tr>
<th>Date</th>
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<th>02/13</th>
<th>02/27</th>
<th>03/12</th>
<th>03/26</th>
<th>04/05</th>
<th>04/23</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corrects</td>
<td>32</td>
<td>30</td>
<td>32</td>
<td>35</td>
<td>40</td>
<td>42</td>
<td>40</td>
<td>43</td>
<td>45</td>
<td>48</td>
<td>51</td>
<td>56</td>
<td>60</td>
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<tr>
<td>Errors</td>
<td>7</td>
<td>10</td>
<td>7</td>
<td>7</td>
<td>5</td>
<td>7</td>
<td>6</td>
<td>7</td>
<td>5</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

Goal Trend ROI: 2.003 0.98

Grade 2: Reading - Standard Progress Monitor Passages

- Corrects
- Errors
- Corrects Trend

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Using Data to Make a Decision

- Continued discrepancy in skill.
- Rate of improvement below that of peers.
- Steady, slow progress with targeted, 1:1 intervention.
- Not on track to meet benchmark.
- Interventions used were research-based and well-implemented.
- Refer to Tier 3.

Treating Reading, Writing, Math Problems

Tier 3: Differential Diagnosis and Treatment Planning
Referral Questions

- Does the student’s performance meet diagnostic criteria for a written language learning disability?
- What can teachers do to improve student’s achievement in reading and spelling?

Language is Oral and Written, Receptive and Expressive

Oral Language =
- Listening Comprehension
- Oral Expression

Written Language =
- Reading Comprehension
- Written Expression
What do we know about reading problems?

Students have persistent reading and/or writing problems for different reasons.
- Word reading and spelling may be impaired relative to verbal comprehension.
- Handwriting and/or spelling may be impaired relative to verbal comprehension.
- Language processing and verbal expression may be impaired.

What do we know about Written Language Problems?

There are three kinds of specific learning disabilities that affect written language.
- One of these is Dyslexia, or a Specific Reading Disability.
- The other two are Oral/Written Language LD and Dysgraphia.
Not all Reading Problems are Dyslexia (Berninger, 2006)

- Dyslexia is a specific learning disability affecting accuracy and rate of reading real words, phonological decoding, oral reading of passages, and written spelling.
- Except for phonological processing, oral language skills are spared and comprehension is good.

Not all Reading Problems are Dyslexia (Berninger, 2006)

In oral and written language learning disability (OWL LD), oral language skills, including comprehension, are impaired in addition to the same skills that are impaired in dyslexia.
Not all Reading Problems are Dyslexia (Berninger, 2006)

Dysgraphia is a specific learning disability that impairs legibility and automaticity of handwriting and/or written spelling.

Prevalence

- Approximately 10% - 15% of students in the general population have one of these disorders.
- The disorders sometimes co-exist (e.g., dyslexia and dysgraphia).
Differential Diagnosis

Are the student’s reading difficulties symptoms of
- a Specific Reading Disability (Dyslexia), and/or
- an Oral and Written Language Learning Disability, and/or
- Dysgraphia.

Differential Diagnosis Related to Coding of Three Word Forms

One research finding is that the nature of the specific written-language deficit is related to the coding operation (storage and processing of phonological, orthographic, and morphological word forms) that is impaired.
Written Language Problems and the Three Word Forms

Written Language Problems Based on a Working Memory Architecture (Berninger, 2007)
Importance of Research Supported Diagnosis

Research supported diagnosis is important because there are instructional implications.

- Students with dyslexia need more systematic and explicit instruction in word decoding than do grade peers.
- Once they learn to decode, their reading comprehension typically develops normally.

Importance of Research Supported Diagnosis

- See *Instructional Implications* in *Dyslexics Can Learn How to Read and Write and Teachers can Teach Them*, PAL-II User’s Guide.
Instruction for Word Decoding

Subword Level
- Phonological Awareness
- Orthographic Awareness
- Alphabetic Principle

Word Level
- Decoding

Text Level
- Silent Reading for Meaning

Importance of Research Supported Diagnosis

- Students with a language learning disability need systematic and explicit instruction in oral language (morphological and syntactic awareness) and in reading comprehension and decoding.
- Students with dysgraphia need systematic, explicit (not incidental) handwriting and spelling instruction.
Differential Diagnosis: Dyscalculia

Disorder of Math Calculation Skills

Dyscalculia - SLD Math

- Disorder of math calculation skills.
- It is also a working memory disorder.
Referral Concerns

- Weakness with mental calculation in working memory.
- Difficulty with paper-and-pencil calculation.

Many Processes can Affect Written Calculation

- Counting fluency.
- Quantitative working memory.
- Numeric coding in working memory of visual symbols for numerals.
- Numeral writing.
- Phonological and orthographic loops in working memory.
- Oral and written fluency in retrieving math facts from memory.
If Fact Retrieval is Impaired . . .

- If student struggles to switch attention from one operation to another (+, -, x), teach student to name the operation.
- Use multi-modal teaching for automaticity.
- Use selective reminding.
References


Questions about Training

[www.PsychCorp.com/TrainingConsultation](http://www.PsychCorp.com/TrainingConsultation)

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