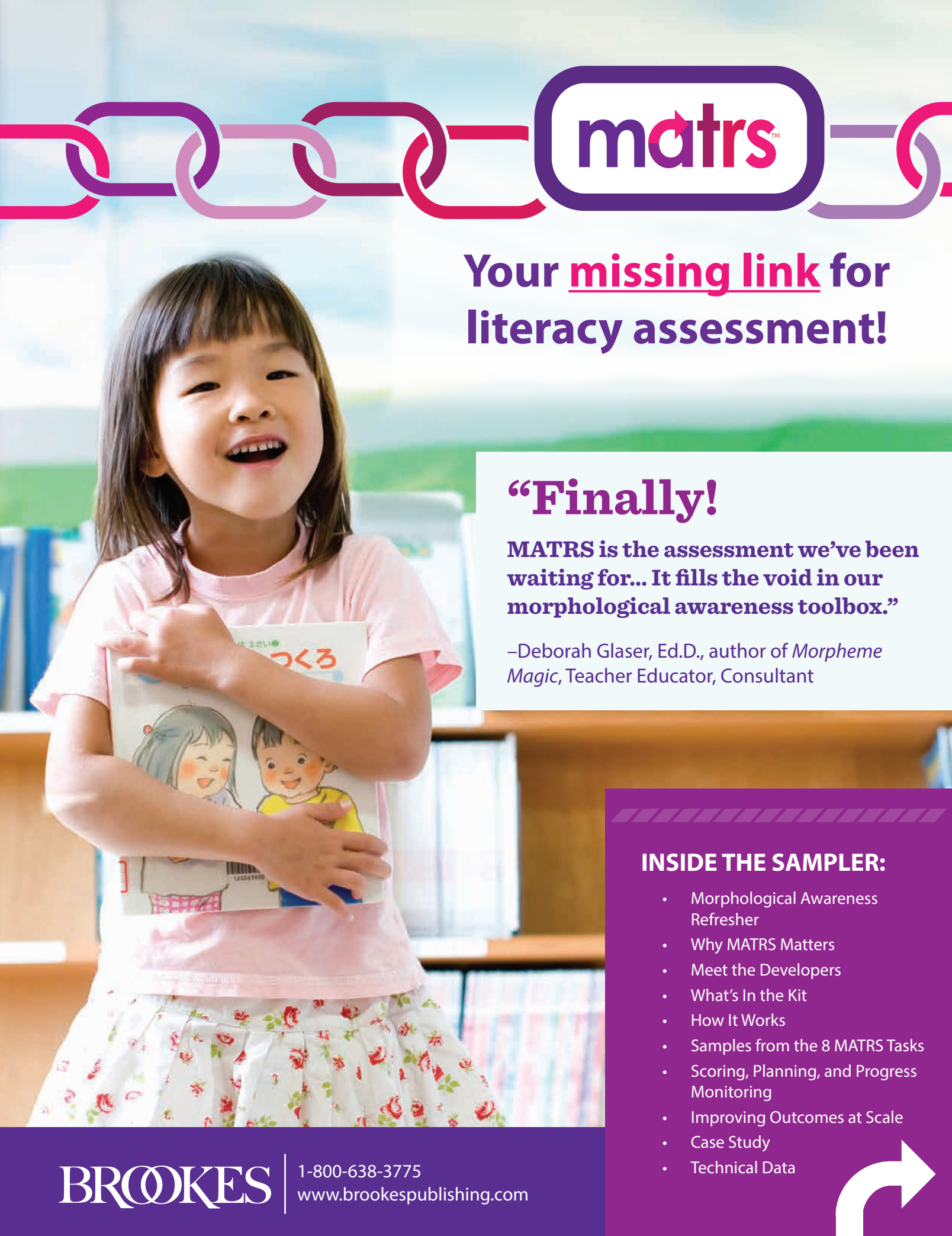




matrs™

Your missing link for
literacy assessment!

“Finally!

MATRS is the assessment we’ve been waiting for... It fills the void in our morphological awareness toolbox.”

—Deborah Glaser, Ed.D., author of *Morpheme Magic*, Teacher Educator, Consultant

INSIDE THE SAMPLER:

- Morphological Awareness Refresher
- Why MATRS Matters
- Meet the Developers
- What’s In the Kit
- How It Works
- Samples from the 8 MATRS Tasks
- Scoring, Planning, and Progress Monitoring
- Improving Outcomes at Scale
- Case Study
- Technical Data

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Morphological Awareness: A Powerful Predictor of Literacy Success

Morphological awareness (MA) skills are a powerful—but often overlooked—predictor of a child’s reading and spelling abilities.

As a refresher: Morphemes are the **smallest units of meaning in a language**. In the English language, morphemes are:



Simple base words,
such as *friend*, *walk*, and *red*

These are also known as free morphemes.

Affixes (prefixes and suffixes),
such as *fun-*, *re-*, *-ly*, *-ing*, *-ness*, and *-er*

These are also known as bound morphemes.

Morphological awareness, then, is the ability to recognize, understand, and consciously use the smallest units of meaning in a word: base words and affixes.

Why Morphological Awareness Matters

Morphological awareness is like a “superpower” that helps unlock the meaning and spelling of words. A student with strong MA skills can:

**Break an unfamiliar word
down into morphemes**

Canada + -ian

Canadian

**Assign meaning to
each morpheme**

Canada = a country
in North America
-ian = a person who
belongs to

**Problem-solve the word
(meaning and spelling)**

a person from the
country of Canada!

Canadian

When you have the full picture of your students’ current MA skills, you can develop better instructional plans that target MA—and help resolve any struggles with reading and writing.





matrs™: Your Missing Link in Literacy Assessment

Most literacy assessments don't focus on the morphological awareness skills that so strongly predict reading and spelling success.

Now there's the Morphological Awareness Test for Reading and Spelling™ (MATRS™): **your comprehensive, reliable, and valid assessment tool** for evaluating students' MA skills.



Identify Students Other Assessments Miss

For use with students in Grades 1–6, MATRS™ helps educators accurately identify students who struggle in one or more of the four domains of morphological awareness:

- Awareness of spoken and written morphemes
- The meaning of affixes and how they can alter the meaning and or grammatical class of base words when they are applied
- How affixes are attached to base words, including any modifications to written base words when they are attached
- The relation between base words and their inflected and derived forms

“MATRS offers a psychometrically sound, normed assessment that ensures reliable, comparable results across diverse populations, giving educators and clinicians the data they need to make informed decisions.

—*Young-Suk Grace Kim, Ed.D., Professor, School of Education, University of California, Irvine*

Read on to discover why every school should be assessing with **matrs™** →



matrs™ & the Science of Reading

Morphological Awareness: The Overlooked “Big Idea”

When we talk about the essential components of literacy development that inform evidence-based instruction, most of the conversation focuses on these six big ideas:

- Oral Language
 - Phonics
 - Fluency
 - Phonological Awareness
 - Vocabulary
 - Comprehension
- + Morphological Awareness



All of these components are vitally important, but morphological awareness is **the big idea missing from this list**. Though research¹ supports teaching morphological awareness alongside phonics in the early grades, MA is often left out of both assessment and targeted instruction.

That means **children who struggle primarily with MA are falling through the cracks**—and falling further behind while the root of the problem goes undetected.

MA + Dyslexia

Morphological awareness has been recognized by the International Dyslexia Association as a notable factor for why students aren’t able to develop literacy skills like their peers. IDA’s updated definition of dyslexia says:

“Dyslexia is a specific learning disability....(which may be characterized by)... underlying difficulties with phonological and morphological processing.”

Using MATRS to uncover difficulties with MA and following up with targeted instruction will help students with dyslexia improve their decoding, spelling, and comprehension abilities.

“ [With the] inclusion of morphology in the International Dyslexia Association’s revised definition of dyslexia, MATRS is a much needed and very timely contribution to the field of literacy assessment.

—Jan Wasowicz, Ph.D., CCC-CLP, BCS-CL, Speech-Language Pathologist,
Board Certified Specialist in Child Language, SPELL-Links Author

¹Bowers, P. N., Kirby, J. R., & Deacon, S. H. (2010). Effects of morphological instruction on literacy skills: A systematic review. *Review of Educational Research*, 80(2), 144–179.
Stanford NSSA. (2023). Morphological awareness intervention with kindergarteners and first- and second-grade students. Available at stanford.edu/studies.



Top 5 Benefits of **matrs**



Solves the mystery of why some students struggle.

Some students struggling with literacy skills may do well on standardized tests that aren't designed to catch MA difficulties. MATRS solves the mystery, pinpointing the MA skills these students need more support to develop.



Gives results you can trust.

The product of more than a decade of research, MATRS was developed by a team of experts on morphological awareness (see page 7 for more on the developers). MATRS fills the need for a norm-referenced and standardized MA assessment tool—4,060 students were included in the normative sample.



Informs lesson plans that support better outcomes.

With well-informed results from MATRS, you can develop more prescriptive lessons to target specific challenges with aspects of morphological awareness. (The case studies in the MATRS manual give you concrete ideas for instructional activities.)



Facilitates progress monitoring.

There are two versions of MATRS forms: A and B. Administer Version A as a pre-test before instruction begins. Then, if a student requires morphological awareness instruction/intervention, give Version B after a certain amount of instruction has occurred to measure growth. Having the two different versions that equate with one another ensures you aren't "teaching to the test."



Easy and intuitive to use.

Detailed instructions, scripted tasks, short videos that demonstrate how each task is administered, and automatic standard score conversion make MATRS administration smooth and efficient.



Meeting State Standards

Most state standards for students in elementary and middle school have one or more goals focused on students' morphological awareness². Examples of these goals include:



1. **Kindergarten:** “Use the most frequently occurring inflections and other affixes (-ed, -s, -er, un-, -ful, -less) as a clue to the meaning of an unknown word.”
2. **Second grade:** “Determine the meaning of a new word when a known prefix is added to a known word (e.g., *happy/unhappy*, *tell/retell*).”
3. **Fifth grade:** “Use conventional spelling for high-frequency words and other study words and for adding suffixes to base words (e.g., *sitting*, *smiled*, *cried*, *happiness*).”

Assessing morphological awareness with MATRS is **key to meeting your state’s literacy standards** and reaching your ultimate goal: better outcomes for all students.

Praise for **matrs**

“MATRS is the first of its kind. Easy to administer and score, [it] provides helpful guidelines for how to use test results to plan morphological awareness intervention for students who need it. Practitioners will find MATRS a valuable addition to other diagnostic testing for students with or at risk for literacy difficulties, including those with dyslexia.

—**Louise Spear-Swerling, Ph.D.**,

Professor Emerita, Department of Special Education, Southern Connecticut State University

“Timely and easily implemented, MATRS gives teachers the information they need about students’ morphological awareness and spelling. This assessment will be instrumental in advancing morphological awareness understanding and instruction.

—**Deborah Glaser, Ed.D.**, *author of Morpheme Magic, Teacher Educator, Consultant*

“MATRS is a gem.... an evidence-based test of morphological awareness that is both comprehensive and clear. What a gift for clinicians and teachers!

—**Nickola Wolf Nelson, Ph.D., CCC-SLP, BCS-CL**,

Professor Emerita, Western Michigan University

²Gabig, C. S., & Zaretsky, E. (2013). Promoting morphological awareness in children with language needs: Do the Common Core State Standards pave the way? *Topics in Language Disorders*, 33(1), 7–26. <https://doi.org/10.1097/TLD.0b013e318280f592>



Meet the Developers

MATRS was developed by this team of leading experts on morphological awareness through more than a decade of research:



Kenn Apel, Ph.D., CCC-SLP (Ret.), is Distinguished Professor Emeritus in the Department of Communication Sciences and Disorders at the University of South Carolina, Columbia. Formerly, he was chair of that department. Dr. Apel has more than 35 years of experience conducting research in the areas of spoken and written language. His recent research focus has been on the linguistic factors that contribute to the development of reading and spelling, including morphological awareness and orthographic knowledge. Dr. Apel is a Fellow of the American Speech-Language-Hearing Association (ASHA). He also received the Honors of that Association.

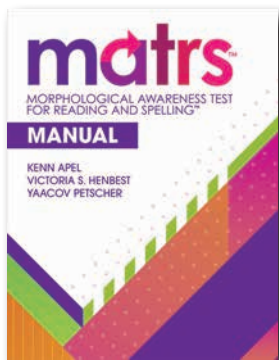
Victoria S. Henbest, Ph.D., CCC-SLP, is an ASHA-certified SLP and Associate Professor in the Speech Pathology and Audiology Department at the University of South Alabama. Prior to earning her doctoral degree, Dr. Henbest worked for 5 years as a full-time clinician in a public school setting with preschool-age children with speech and language needs. Dr. Henbest's primary research interests include word-level reading and spelling and the association between linguistic awareness skills, particularly morphological awareness, and literacy development. She has published and presented on these topics at the state, national, and international levels.



Yaacov Petscher, Ph.D., is Associate Dean for Research and Professor at the Florida Center for Reading Research, Tallahassee, and Deputy Director of the National Center on Improving Literacy. Dr. Petscher's research interests include the study of cross-sectional and longitudinal individual differences in literacy, psychometrics, reading assessment, and research design. He has co-authored more than 200 peer-reviewed publications, book chapters, books, and technical reports, and his work has been recognized with awards from the Society for the Scientific Study of Reading, the International Literacy Association, the American Educational Research Association, and more.

matrs™ Kit Components

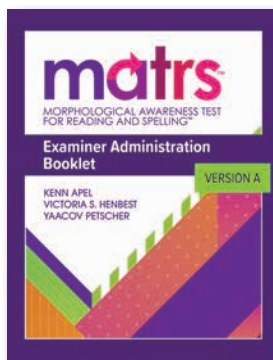
The MATRS kit includes all the components you need to successfully administer the test and conduct follow-up:



Assessment
Manual



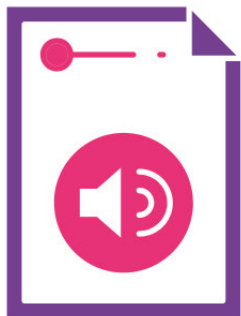
Technical
Report



Examiner
Administration
Booklet



Demonstration
videos for
each task



Audio files to
elicit student
responses



Student
Response
Forms



Excel Scoring
Solution



Second set of
assessment materials
for follow-up testing





How **matrs** Works

MATRS consists of easy-to-implement subtests called tasks, administered by a reading specialist, speech-language pathologist, or other intervention specialist. There are a total of eight tasks in MATRS, and students complete four in each grade:

Domain	Task	Grade(s) That Complete					
		1	2	3	4	5	6
1. Awareness of spoken or written morphemes	Task 1: Segmenting	✓	✓				
	Task 2: Affix Identification			✓	✓	✓	✓
2. Awareness of affix meanings	Task 3: Affix Meaning	✓	✓	✓	✓		
	Task 4: Suffix Choice					✓	✓
3. Awareness of alterations to base word spelling	Task 5: Spelling Multi-Morphemic Words				✓	✓	✓
	Task 6: Suffix Spelling	✓	✓	✓			
4. Awareness of meaningful relations	Task 7: Spoken Relatives	✓	✓				
	Task 8: Written Relatives			✓	✓	✓	✓

Here's how the kit components are used together to administer MATRS:

- 1 First, the examiner reviews the **Assessment Manual** for background information on morphological awareness and MATRS development and administration. The **Technical Report** provides additional insights on the data behind MATRS.
- 2 The examiner watches the **demonstration videos** to learn how to administer each task.
- 3 Following the clear instructions in the **Examiner Administration Booklet**, the examiner gives students oral prompts and plays **audio recordings** to elicit responses for each task. (The test takes about 35–45 minutes.)
- 4 Students record their responses on the **Student Response Form**.
- 5 The examiner scores MATRS with the time-saving **Excel scoring solution**, which provides automated access to standard scores and percentile ranks.
- 6 MATRS results are used to guide intervention for students who struggle with MA.
- 7 After students receive intervention, the examiner uses the **second set of assessment materials to administer a follow-up test** and determine the effectiveness of the interventions.

**Keep reading for a tour
of the 8 MATRS tasks!**



Who Administers **matrs**?

MATRS can be given by a range of practitioners responsible for assessing students who are struggling with literacy skills, including:



- Speech-language pathologists
- School and educational psychologists
- Learning specialists and similar professionals
- Researchers

MATRS can be used as part of a comprehensive assessment process for students referred for possible reading and/or spelling challenges. You might give MATRS as part of the typical battery of measures you use when students perform below expectations in reading and spelling. You might also administer MATRS outside of a battery of tests when you recognize indicators of poor morphological awareness skills (for example, if a student consistently leaves off affixes when they read or spell).

Getting Ready: 4 Steps Before You Start

No special training is required to administer MATRS, but you should have a solid understanding of both morphological awareness and MATRS itself. Follow these steps before administering the test:



Closely read the background information in the MATRS Examiner's Manual



Review the administration instructions for each task



Watch the demonstration videos for each task
(See the *About the Downloads* page at the front of the manual for access instructions)



Review the example case studies in the manual that illustrate the assessment-to-intervention process



Assessing with MATRS

An Overview of the 8 Tasks

On the next few pages, you'll find an overview of the 8 morphological awareness tasks in MATRS and samples from each one, excerpted from the Examiner Administration Booklet.



Awareness of Spoken or Written Morphemes (Domain 1): Tasks 1 and 2

Segmenting (Task 1) is designed to assess the student's ability to break down spoken words into morphemes. This task requires students to tap out the number of morphemes they hear in a spoken word (e.g., two taps for the word *actor*).

Sample Task:



TASK 1: SEGMENTING

Version A

Examiner completes the Student Response Form for this task.

Practice Items jumps
neighborly
recycling



TASK 1: Circle the number of taps the student makes.

1.	jumps	1	2	3	4	5	6	>6
2.	neighborly	1	2	3	4	5	6	>6
3.	recycling	1	2	3	4	5	6	>6

Affix Identification (Task 2) is designed to assess the student's ability to find affixes (prefixes and suffixes) in print. This task requires students to view nonsense words and circle any real affixes they see attached to those nonsense words (e.g., circling the *-es* in *grushes*).

Sample Task:



TASK 2: AFFIX IDENTIFICATION

Student completes the Student Response Form for this task.

Practice Items midpate
clartship
nulky
nonblenkial



TASK 2

1.	midpate
2.	clartship
3.	nulky

Awareness of Affix Meanings (Domain 2): Tasks 3 and 4

Affix Meaning (Task 3) is designed to assess the student's conscious understanding of what affixes mean. During this task, students hear and see pseudowords and their pseudo-meanings. Then they're provided the definitions of **inflected or derived forms** of the pseudowords and are asked to choose an affixed word that meets the definition.

Sample Task:

If edam means "sea," then which word means "to go in the direction of the sea"?	
a.	edams
b.	edamer
c.	edamable
d.	edamward

Inflected vs. Derived

Affixes can be inflectional or derivational morphemes.

Inflectional morphemes provide more information about a base word, such as time and quantity, without changing the basic meaning of the base word (e.g., talked, talking, talks, dogs, taller, tallest).

Derivational morphemes change the meaning and/or word class of the base word (clear/unclear; paint/painter).

Suffix Choice (Task 4) is designed to assess the student's conscious understanding of affixes and how a base word's meaning and word class may change when an affix is attached. This task requires students to read sentences with missing affixed words and then choose the correct affixed form from a list of four possible choices.

Sample Task:

A. Noah was not known for being overly _____.	
1.	friendship
2.	friendly
3.	friendliness
4.	friends
B. My father is creative and thinks he is quite _____.	
1.	poetry
2.	poets
3.	poetic
4.	poeticize



Awareness of Alterations to Base Word Spellings (Domain 3): Tasks 5 and 6

Spelling Multi-Morphemic Words (Task 5) is designed to assess the student's active attention to spelling multi-morphemic words, including the changes in base words when certain suffixes are added. This task requires students to spell 21 words containing two or more morphemes.

Example of Student Response:



TASK 5

1.	penniless
2.	barely
3.	

Suffix Spelling (Task 6) is designed to assess the student's conscious awareness of the spelling of a missing suffix in a written word, including changes in base words when certain suffixes are added. This task requires students to hear and read written sentences that contain spellings of base words without their suffixes and then choose correct spellings of the missing suffix from three potential spellings.

Sample Task:

A. The two girls had a strong friend_____.	
1.	shap
2.	shyp
3.	ship
B. When meeting the new teacher, the nervous boy was a bit sheep_____.	
1.	esh
2.	ish
3.	sh

Awareness of Meaningful Relations (Domain 4): Tasks 7 and 8

Spoken Relatives (Task 7) is designed to assess the student's active awareness of the meaningful relations between spoken base words and their inflected or derived forms. For some items on this task, students hear base words and then sentences that are missing an inflected or derived form of those base words. The students then must say the missing word. For other items, the students hear an inflected or derived word and then must fill in a presented sentence with the base form of the word.

Example of Student Response:



TASK 7: SPOKEN RELATIVES

Version A

Examiner completes the form, reads the items aloud, and records student responses for this task.

1. Party. We went to three birthday parties.

2. Quickly. I saw her running and she was very quick.

3. Feeds. The farmer has many cows to feed.

Written Relatives (Task 8) is designed to assess the student's conscious awareness of the meaningful relations between written base words and their inflected or derived forms. This task has the same structure as Task 7; however, the words and sentences are all presented in written form only.

Example of Student Response:

A. Fancy: My friend's car is fancier than mine.

B. Reflection: I had to reflect on what the teacher said.





Scoring

Scoring MATRS is quick and easy, whether you use the scoring chart on the Student Response Form or the automatic standard score conversion sheet in Excel. Here's a sample chart completed for a sixth-grade student. →

MATRS scoring relies on standard scores and percentile ranks based on a bell-shaped curve, which represents a normal probability distribution of scores. Standard scores and percentile ranks are provided for each task at each grade level. Since morphological awareness is a four-domain skill and students may struggle in one or more of them, you'll notice that students may perform within the average range on one MATRS task but below average on another.

Task	Raw Score	Standard Score	Percentile
2	7	90	26
4	5	75	5
5	5	83	13
8	4	77	6

Planning Instruction and Intervention

Once MATRS testing has been completed and parent(s) have been informed of the results, students who demonstrate skills below grade expectations in one or more MA domain should be scheduled to receive instruction/intervention to improve their morphological awareness abilities. The MATRS manual offers sample scenarios with examples of how a practitioner might begin remediating morphological awareness difficulties. (See the case study on page 16 for one example!)

“ MATRS ...provides rich, clinically actionable insights that directly inform targeted intervention planning.

—**Adria B. Leno MS, CCC-SLP**, *Certified SPELL-Links to Reading & Writing Trainer, CEO, Communicate & Connect Therapy, LLC.*

Progress Monitoring

MATRS includes two different versions (Version A and Version B), which are designed to assess initial and later skills. After you administer Version A and students receive interventions to make progress with their morphological awareness abilities, you can administer Version B of MATRS to evaluate progress and make any adjustments.



Case Study: Connor

Connor was a 9-year-old third-grade student at an independent private school. He typically scored low average on class-administered reading tasks, but his parents noticed that his scores on these measurement tasks seemed to fall farther behind his peers' abilities with each increasing grade level. His teacher often marked up his papers for "poor spelling" (e.g., *hiting* for hitting; *jumpt* for jumped). Concerned that Connor might be falling through the cracks, his parents requested that he be administered a formal evaluation of his literacy abilities.

The special education teacher conducted a series of diagnostic measures and determined Connor did not qualify for special services. But Connor's parents continued to be concerned. Connor did not enjoy reading, and he grumbled and argued every time he had English language arts homework.



Connor's parents elected to take him to a reading specialist who operated a private practice. The specialist conducted an initial diagnostic session, and Connor's results on those tests were highly similar to those the special ed teacher had reported. But given Connor's low average/below average reading skills and his parents' concerns, the specialist conducted some additional testing.

Connor's MATRS Testing

First, the specialist administered the grade-specific tasks from MATRS, which addressed the four domains of morphological awareness. Here is Connor's completed Scoring Chart: ➔

Task	Raw Score	Standard Score	Percentile
2 - Affix Identification	11	96	41
3 - Affix Meaning	9	95	38
6 - Suffix Spelling	4	79	8
8 - Written Relatives	7	89	22

Connor's scores were within expected limits for Tasks 2, 3, and 8. However, Connor's score on Task 6, Suffix Spelling, indicated limited awareness of how to spell affixes and the modifications to written base words when suffixes are added. Although his responses contained the correct affixes, they were misspelled, as were the base words when a modification was required.

As a follow-up, the specialist asked Connor to read aloud from a fourth-grade textbook. She noted that Connor sometimes mispronounced the end of words, particularly those containing suffixes. When the specialist asked Connor to spell words with suffixes, Connor often spelled suffixes the way they sounded instead of the way they are written (e.g., *friendlee*) and showed little to no understanding of the way in which the attachment of suffixes sometimes altered the base word on which it was attached (e.g., *happynes*).



Follow-Up: Special Instruction in MA Skills

The specialist determined that Connor's morphological awareness for the spelling of affixes and the spelling modifications they made to base words was not appropriate for his grade level and likely was contributing to his low reading and spelling skills.

During her follow-up meeting with Connor's parents, the specialist went over the results of Connor's MATRS testing and the informal follow-up measures she conducted. Given the specialist's finding that Connor's delayed morphological awareness skills likely were contributing to his literacy deficits, Connor's parents decided it would be best for him to receive some special instruction.

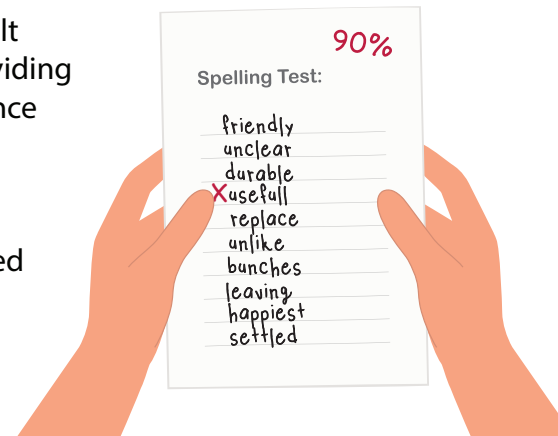
The specialist scheduled intervention time with Connor twice a week for 45 minutes per session. Connor's specialist opted to use word-sort activities, which help students discover specific morphological patterns and rules on their own, with some guidance from the adult. Once Connor seemed aware of the rules guiding the modification to the base word, the specialist also provided short, spoken sentences in which at least one word followed the rule Connor just discovered. Connor was encouraged to follow the rule as he wrote the sentence. He and the specialist then searched his textbook for examples of words that followed that rule. This series of instructional steps was used for a range of affixes across sessions.



Five Months Later: Connor's Progress

Connor made progress with his morphological awareness skills as a result of these sessions. The specialist continued to work with his parents, providing them with take-home activities and asking for updates on his performance at school.

On the next class-administered reading task (approximately 5 months later), Connor's parents informed the specialist that Connor had improved his performance on the task, obtaining a score much more like many of the students in his classroom. He made progress with spelling, too—though his errors were at times still present, Connor could now spell affixes correctly most of the time.



matrs[™] Technical Data

MATRS was developed using modern measurement science, such as item response theory (IRT) models, including Rasch modeling. These methods allowed its authors to calibrate each item's difficulty, **pinpointing the test items that were most informative for identifying students who struggle with morphological awareness.** The authors also used differential item functioning analysis that showed **the test is fair across student groups.** That is, items are not biased.

Across its three years of development, using **5,403 students**, MATRS was found to be a reliable and valid measure. Across the MATRS tasks, reliability estimates per grade landed **almost entirely in the .80s to .90s, with several tasks reaching into the mid-.90s.** This means that the test measures morphological awareness with strong precision.

The MATRS task scores also were correlated with gold-standard reading and language measures and showed **solid concurrent and predictive validity.** That means that MATRS **predicts current and future scores on other literacy measures.**

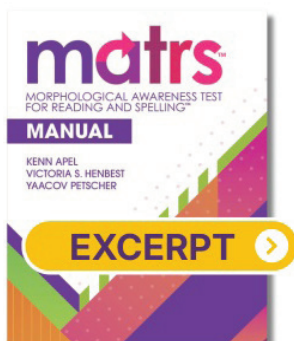
AT A GLANCE

The authors' research showed:

- ✓ MATRS is a reliable and valid measure with strong precision
- ✓ MATRS items are not biased and the test is fair across student groups
- ✓ MATRS effectively predicts scores on other literacy measures



EXPLORE THE DATA →



For a more in-depth look at the data behind MATRS, see this free excerpt from the manual!

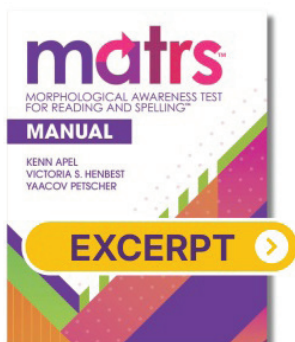
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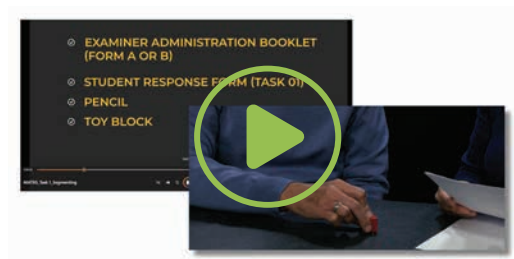


TAKE THE NEXT STEPS TODAY!

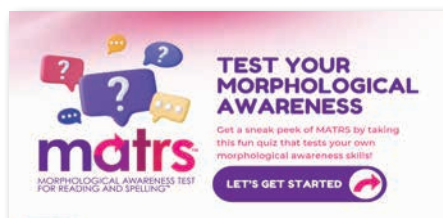
Visit bpub.fyi/MATRS to:



Read an excerpt from the MATRS manual



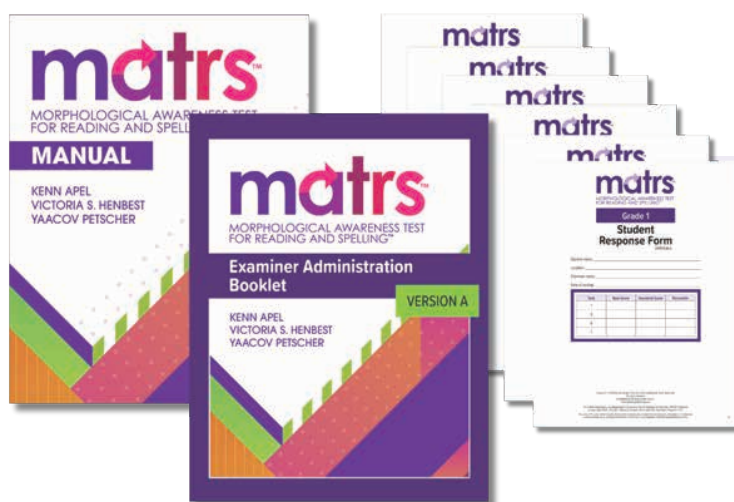
Watch the demo videos to see how to administer tasks



Take the MATRS quiz to try the items yourself



Contact your Brookes representative to get your questions answered



Order your MATRS kit

“Finally, there is a **reliable** and **valid** norm-referenced assessment of **morphological awareness** to use with elementary-aged students!

–Stephanie Al Otaiba, Ph.D., Southern Methodist University,
Faculty Affiliate of the Florida Center for Reading Research



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