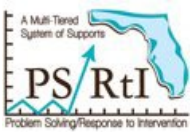
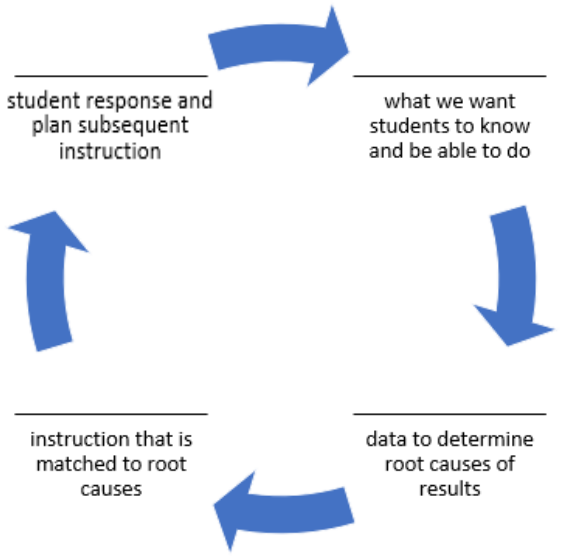
Accelerating Student Growth Through Data-Based Problem Solving



My Current Data Analysis Process:

Data Sources I use:



What? So What? Now What?

What did I do and learn?	Why is this important?	What will I do with this learning?

Assessment Terms Used in Reading

There are multiple terms used to describe reading assessments. This infographic is intended to clarify these terms.

Screening Assessment

"Brief assessments, typically administered to all students, designed to identify those at risk of failing an outcome. Performance on a screening assessment can be used to identify students who need further evaluation of skills as well as students who are expected to perform adequately or in an accelerated fashion on an outcome assessment."[1]

A screening assessment can also be used as an interim assessment.

Diagnostic Assessment

An assessment that is typically given to those identified as at-risk on a screening assessment to provide specific information to practitioners about a student's strengths and weaknesses.[1]

Progress Monitoring

There are two approaches to monitoring students' progress thoughout the school year.

Interim Assessment

An assessment that is used to evaluate student knowledge and skills relative to a specific set of academic goals. These assessments are typically administered within a limited time frame. Results can be used at the classroom level as well as aggregated and reported at the school or district level.[2]

Formative Assessment

An on-going assessment process that is used by teachers and students to gauge student learning of the current unit of instruction. Formative assessments help teachers provide corrective feedback, modify instruction to improve the students' understanding, or indicate areas needing further instruction.[2]

Summative Assessment

An assessment generally administered one time, usually at the end of a school year, to evaluate students' performance relative to a set of content standards.[2]

1. Foorman, B.R., Kershaw, S., & Petscher, Y. (2013). *Evaluating the screening accuracy of the Florida Assessments for Instruction in Reading (FAIR)*. (REL 2013–008). Washington, DC: U.S. Department of Education, Institute of Education Sciences.

2. Perie, M., Marion, S., Gong, B., & Wertzel, J. (2007). *The role of interim assessments in a comprehensive assessment system*. The Aspen Institute.

Information in this infographic is supported by IES/NCEE's Regional Educational Laboratory Southeast at Florida State University (Contract ED-IES-17-C-0011) as resources and examples for the viewer's convenience. Their inclusion is not intended as an endorsement by the Regional Educational Laboratory Southeast or its funding source, the Institute of Education Sciences.

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DOMAINS	**R** **Review**	**I** **Interview**	**O** **Observe**	**T** **Test**
I **Instruction**				
C **Curriculum**				
E **Environment**				
L **Learner**				

A

Problem-Solving using the ICEL/RIOT Matrix

One tool that can assist schools in their quest to sample information from a broad range of sources and to investigate all likely explanations for academic or behavioral problems is the ICEL/RIOT matrix. This matrix helps schools to work efficiently and quickly to decide what relevant information to collect on academic performance and behavior—and also how to organize that information to identify probable reasons why the student groups are not experiencing academic or behavioral success.

Key Domains of Learning		
I	**Instruction**	Instruction is how the curriculum is taught and can vary in many different ways including: level of Instruction, rate of Instruction, and presentation of Instruction
C	**Curriculum**	Curriculum refers to what is taught. Curriculum would include scope, sequencing, pacing, materials, rigor, format, relevance
E	**Environment**	The environment is where the instruction takes place. Variables in the environment include classroom expectations, beliefs/attitudes, peers, school culture, facilities, class size, attendance/tardies, management
L	**Learner**	The learner is who is being taught. This is the last domain that is considered and is only addressed when the curriculum and instruction are found to appropriate and the environment accommodating. Variables include motivation prerequisite skills, organization/study habits, abilities, impairments, and history of instruction.

The ICEL/RIOT matrix is not itself a data collection instrument. Instead, it is an organizing framework that increases schools' confidence both in the quality of the data that they collect and the findings that emerge from the data (Hosp, 2006, May). The leftmost vertical column of the ICEL/RIOT table includes four key domains of learning to be assessed: **Instruction**, **Curriculum**, **Environment**, and **Learner** (ICEL). A common mistake that schools often make is to assume that student learning problems exist primarily in the learner and to underestimate the degree to which teacher instructional strategies, curriculum demands, and environmental influences impact the learner's academic performance. The ICEL elements ensure that a full range of relevant explanations for student problems are examined.

The top horizontal row of the ICEL/RIOT table includes four potential sources of student information: **Review**, **Interview**, **Observation**, and **Test** (RIOT). Schools should attempt to collect information from a range of sources to control for potential bias from any one source.

Potential Sources of Information	
R	Review of historical records and products
I	Interview of key stakeholders
O	Observe performance in real time functional settings
T	Test student through careful use of appropriately matched measurement technologies

The power of the ICEL/RIOT matrix lies in its use as a cognitive strategy, one that helps educators to verify that they have asked the right questions and sampled from a sufficiently broad range of data sources to increase the probability that they will correctly understand the student's presenting concern(s). Viewed in this way, the matrix is not a rigid approach but rather serves as a flexible framework for exploratory problem-solving.

Adapted from http://www.inghamisd.org/downloads/iisd_se_supportservices/problem_solving_facilitator_guide_11-12.pdf and
http://ncspaonline.com/files/conference2012/cusumano-problemsolving/Hypotheses%20and%20Possible%20Targeted%20Strategies%20during%20Problem%20Solving.pdf

Problem-Solving using the ICEL/RIOT Matrix

Domain		Variables	Review	Interview	Observe	Test
Instruction	Instruction is how curriculum is taught. How content is presented to students can vary in many different ways: Level of Instruction Rate of Instruction Presentation of Instruction Is the curriculum being differentiated to meet the needs of the learners? Consider: • instructional techniques • presentation style • clarity of instruction • questioning • feedback technique • cooperative learning • use of graphic organizers • instructional conversations • development of academic language/ vocabulary	**Group/System** • Instructional decision making regarding selection and use of materials • Use of progress monitoring • Explicit Instruction • Differentiated Instruction • Sequencing of lesson designs to promote success • Use of a variety of practice and application activities • Pace and presentation of new content • Block of time allotted per subject **Individual** • Instructional decision making regarding placement of the student • in groups • Use of progress monitoring Communication of expectations and criteria for success • Differentiated Instruction • Direct instruction with explanations and cues • Use of a variety of practice and application activities • Pace and presentation of new content	• Unit/Lessons Plans • Permanent products (e.g. written pieces, worksheets, projects) for skill/degree of difficulty requirements • Benchmarks / standards • Assignments (calculate % of assign turned in, average amount-%- of assignments completed), • Length/time required to complete assignments	Stakeholders about: • Effective teaching practices • Instructional decision making regarding choice of materials, placement of students, instructional strategies • Sequencing/pacing of instruction • Choice of screening, diagnostic and formative assessments • Product methods (e.g. dictation, oral retell, paper pencil, projects) • Grouping structures used • Accommodations/ modifications used • Reinforcement management/ engagement strategies • Allowable repetition for mastery/ understanding • Who is providing the supplemental/ intensive instruction • Use of supportive technology • Student/group performance compared to peers • Patterns of performance errors/ behavior • Setting(s) where behavior is problematic • Significance of academic, speech, social, task or motor difficulties • Onset and duration of problem • Consistency from day to day, subject to subject • Interference with personal, interpersonal, and academic adjustment • Performance using different modes of expression (e.g. verbal, written, kinesthetic) • Teacher perceptions/hypotheses regarding why the student is unable to demonstrate the desired behaviors- academic and/or behavioral • Philosophical orientation of curriculum (e.g. whole language, phonics) • Expectations of district for pacing/coverage of curriculum	• Teachers' instructional styles/preferred styles of presenting • Clarity of instructions/ directions • Effective teaching practices • Communication of benchmarks/expectations and criteria for success • How new information is presented • Percent of time with direct instruction, whole group instruction, practice time, differentiated instruction, etc. • How teachers gain/ maintain student attention • Academic engaged time • Transitions • Large group instruction • Small group instruction • Independent work time • Group work time • Teachers use of positive reinforcement, student-teacher interaction quality/quantity, (use of direct observation protocols) • Time on task • External supports necessary to sustain engagement	Classroom environment survey Develop checklists on effective instruction "Things to Look For" and "Ask About"

Problem-Solving using the ICEL/RIOT Matrix

Domain		Variables	Review	Interview	Observe	Test
Curriculum	Curriculum refers to what is taught. Scope and sequence would be included here as well as pacing within and between topics. Is curriculum appropriate for student? Consider: • sequencing of objectives • teaching methods • materials provided • difficulty • presentation • length • format • relevance	**Group/System** • Presence of Core Curriculum • Universal behavior expectations/PBIS • Staff training in curriculum • Percentage of students at benchmark/meeting grade level expectations • Long-range direction for instruction • Alignment to standards • Instructional philosophy/approaches • Instructional materials • Stated outcomes for the course of study **• Individual** • Accommodations • Supplementary instruction • Interventions • Access to instruction (time, attention, behavior, attendance) • Instructional materials • Arrangement of the content/instruction	Curriculum selected •scientific researched based •implemented with integrity •integration of supplemental and intensive curriculum, as appropriate Scope and sequence of textbooks and other resources Permanent products (e.g. books, worksheets, curriculum guides) Benchmarks/ Standards	Stakeholders about: • Core curriculum • Support curricula used for supplemental and intensive instruction • Supplemental teaching materials • Expanded core curriculum (e.g. community skills, study skills) • Flexibility for teacher to modify curriculum • Use of data-based decision making • Philosophical orientation of curriculum (e.g. whole language, phonics, direct instruction) • Expectations of district for pacing /coverage of curriculum • Content/outcomes of course • Modifications of benchmarks made for students • Readability of textbook and other resources • Prerequisite skills/prior understanding needed for success • Allowable repetition for mastery/understanding • Technology integration • Cultural competency/relevance of the curricular content to student demographics	•Peer group response to curricular demands •Target student group response to curricular demands •Variety of practice opportunities •Allowance for peer sharing/ mentoring during work time •Student/peer response to curricular materials •Types of student performance options: how are students expected to demonstrate the skill/standards?	Readability/ level of text books and other resources Readability level/difficulties of tests "Things to Look For" and "Ask About"

Problem-Solving using the ICEL/RIOT Matrix

Domain			Variables	Review	Interview	Observe	Test
Environment	Classroom/School	The classroom/school environment is where instruction takes place. How is the environment impacting learning? Consider: •what may distract or inhibit student learning •peers •classroom/school •expectations •beliefs/attitudes •attendance/tardies •class size	• Physical arrangement of the classroom or other problem location • Furniture/equipment • Rules • Management Plans • Routines • Expectations • Peer context • Peer and family influence • Task pressure • Adult supervision	• School/ classroom rules • Physical layouts of school, classrooms, property, and buses as appropriate • Daily schedule-amount of time allocated to instruction in areas of concern. • Out of classroom time for other instruction/ supports	Stakeholders about: •Classroom routines, rules, behavior management plans, situational expectations (e.g. classroom vs. hallway, PE, recess) and how rules were developed •Make-up of peers •(Re)organization of room's layout (e.g. desk location selection, changes) •Limited distractions area School-based personnel: •School wide discipline •In-school behavior •Peer to peer mentoring programs •Adult to peer mentoring •Counselors, school psychologists supports •Teachers •Level of family/school engagement	• The physical layout/arrangement of learning spaces • Lighting/sound sources, temperature, noise levels • Environmental/other student distractions • Posting of rules, clocks, and/or daily schedule • Signal for transitions • Social expectations • Established routines versus new/novel expectations • Peer makeup • Interaction patterns • How students handle transitions in schedule	Classroom mapping Systematic Observation Teacher Working Conditions Survey Student Surveys "Things to Look For" and "Ask About"
	Family/Community	The family/community environment is where student spends time outside of the classroom environment. How is the environment impacting learning? Consider: •what may distract or inhibit student learning •home/family support •expectations •beliefs/attitudes •transience •attendance/tardies	• Resources to support learning • Parent involvement including talking to students about school, checking homework, attending events, and volunteering at school • Rules and expectations at home • Routines • Peer and family influence • Adult supervision • Cultural factors	• Student attendance record • Parent/guardian participation in school open house, parent conferences, volunteer opportunities • Mobility rate • Transportation from home to school (e.g., time on bus) • Discipline records • Student support services being delivered (e.g., integrated, coordinated, offered) • Parent availability for support (parent work schedule) • Other siblings in the home and their performance at school and availability to support/mentor target student	Parents about: •Sleep habits •Nutrition/eating habits •Homework space/time allocation •Supervision •Use of out of school time (e.g., physical activity) •Home responsibilities •Peers •Siblings •Out of school mentoring (e.g., Big Brother/Sister, church involvement, clubs) •Interference of identified difficulty on outside of school activities •Social expectations at home •Cultural factors influencing child •Consistency between parent expectations for performance and school expectations for performance •Consistency between levels of support to complete homework and levels of support in class •Level of family/school engagement	• Community Activities • Club/Sports Activities • Peer interactions • Adult-student interactions	NOTE: Direct assessments may not be available for this Domain

Problem-Solving using the ICEL/RIOT Matrix

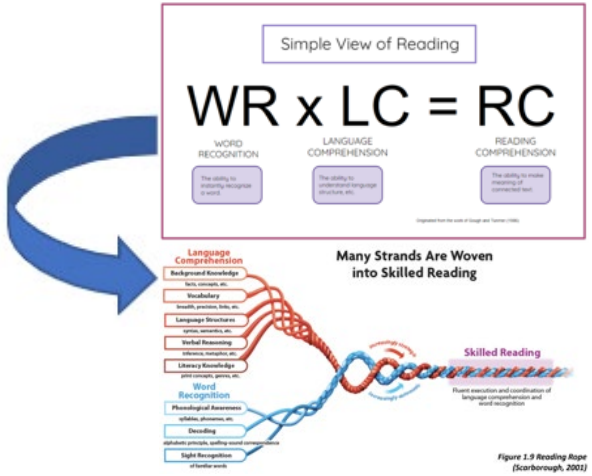
Domain			Variables	Review	Interview	Observe	Test
Environment	Peers	The peer environment is where the instruction takes place. How is the peer environment impacting learning? Consider: •what may distract or inhibit student learning •peers •expectations •beliefs/attitudes •transience •attendance/tardies	• Belonging at school: feeling accepted, respected, and included at school • Resources and structures to support achievement • Rules and social expectations • Peer pressure • Routines • Peer and family influence • Cultural factors	• Attendance records (e.g., tardy to school/classes, absences) • Discipline records • Academic performance and proficiency of peers (similar demographics) • Identify peer supports, friends, problem relationships	Peers about: • Beliefs, self-determination • Peer group/friends • Mentoring opportunities • Club involvement • Community Involvement • Home responsibility • Goals and aspirations • Self-perceived strengths/talents • Self-perceived challenges Teacher about: • Perception of student/peer group interaction • Peer reinforcement of compliance or noncompliance Student about Peer Factors: • The degree to which peers influence work completion, compliance, motivation, target behavior	• Classroom behavior (e.g., class participation, work completion, engagement) • Social Settings (e.g., in-school/hall/Cafeteria behavior and interactions • Interaction of peer to peer • Interaction of target student with peers • Observation protocols to compare performance (e.g., on task, work completed, questions asked, compliance) to same demographic peers. • Compare peer time to complete work to target student time to complete work.	Note: Direct assessments may not be available for this Domain

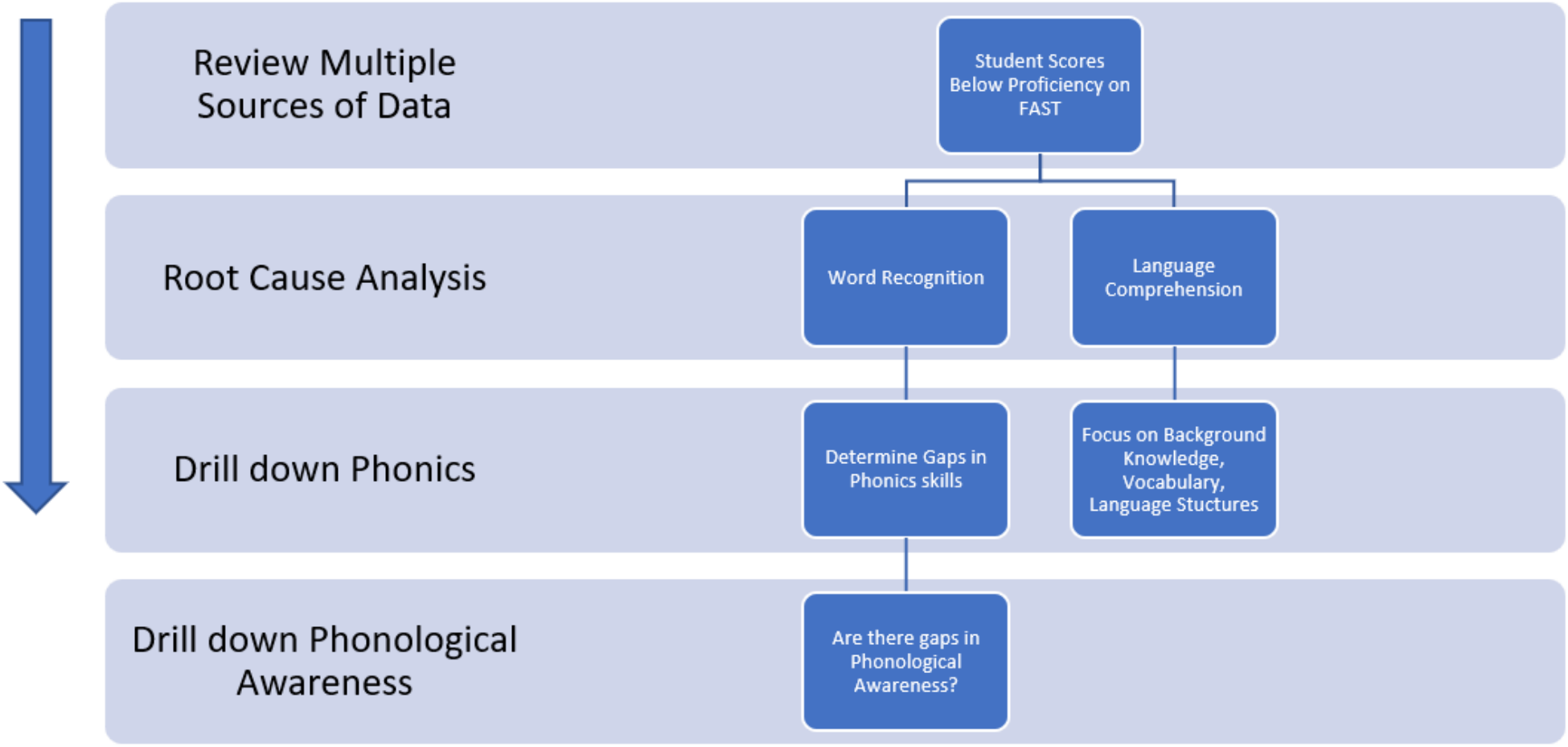
Problem-Solving using the ICEL/RIOT Matrix

Domain		Variables	Review	Interview	Observe	Test
Learner	The learner is who is being taught. This is the last domain that is considered and is only addressed when the curriculum and instruction are found to be appropriate and the environment is accommodating. Variables include motivation, prerequisite skills, organization/study habits, abilities, impairments, and history of instruction.	• Student's current knowledge, or 'prior knowledge' • Academic performance data • Attendance record • Social/behavioral performance data • Student's skills and motivation • Curriculum and instruction are appropriate • Student's 'ability', race, gender or family history	•Product vs. peer product •Cumulative file/ records •Health records, including vision and hearing •Teacher's grade book •Assignment notebook •Previous interventions if available •Patterns of performance, including attendance, retention, and moves •Error analysis of permanent product •Response to interventions as reflected by systematic progress monitoring •Behavior history	Student about: •Self-perceived strengths/talents •Self-perceived challenges •Ideas about what s/he needs •Personal adjustment •Beliefs, self-determination •Peer group/friends •Mentoring opportunities •Club involvement •Community Involvement •Home responsibility •Goals and aspirations Parents about: •Health issues impacting learning •Orthopedic or neurological issues •Hearing/vision checks •Perceptions on learning, behavior, speech, or motor difficulties •Family engagement in school activities (e.g., homework support)	• Student's learning style match for instruction • Use of supportive technology • Target behavior, antecedents, conditions, consequences • Dimensions and nature of the problem • Student/group transitions • Large group instruction • Small group instruction • Independent work time group work time • Time on task • External supports necessary to sustain engagement • Processing directions • Cultural factors • Access barriers • Interactions	•"Things to Look For" and "Ask About" •Standardized academic assessments •Cognitive assessments •Preference/ interest inventories •Motivation scales •Personal adjustment & behavior rating scales •Progress monitoring •Response to interventions •FBA - nature and dimensions of behavior (frequency, duration, latency, intensity), including anecdotal notes •Physical fitness •Physical health •Social emotional well-being •Student effort checklist

Data Decision Tree

- ☐ Below 40th percentile on the FAST K-2
- ☐ Below Level 3 in grades 3-5 on the FSA
- ☐ Analyze classroom assessements
- ☐ Work samples
- ☐ Diagnostic/screener results





Phonological Awareness K-1

Kindergarten	First Grade
ELA.K.F.1.2: Demonstrate phonological awareness. ☐ Blend and segment syllables in spoken words. ☐ Identify and produce alliterative and rhyming words. ☐ Blend and segment onset and rimes of single-syllable words. ☐ Identify the initial, medial, and final sound of spoken words. ☐ Add or delete phonemes at the beginning or end of a spoken word and say the resulting word. ☐ Segment and blend phonemes in single syllable spoken words.	**ELA.1.F.1.2: Demonstrate phonological awareness.** ☐ Segment spoken words into initial, medial, and final phonemes, including words with digraphs, blends, and trigraphs. ☐ Orally blend initial, medial, and final phonemes together to produce a single syllable word that includes digraphs, blends, or trigraphs. ☐ Blend single syllable spoken words with at least five phonemes. ☐ Segment single syllable spoken words with at least five phonemes. ☐ Segment and blend phonemes in multi-syllable spoken words.

Group	Students	Target Skill	Lesson
1			
2			
3			
4			
5			

Phonics Skills K-2

Kindergarten	First Grade	Second Grade
☐ Single consonants ☐ Short and long vowels for all 5 vowels ☐ Decode CVC words ☐ Encode CVC words	☐ r-Controlled Vowels ☐ Inflectional Endings ☐ Digraphs ☐ Blends ☐ Trigraphs ☐ Silent e ☐ Vowel Teams ☐ Decode/encode one syllable words ☐ Decode two syllable words with regular patterns	☐ Variable vowel teams ☐ Diphthongs ☐ Decode/encode two syllable words ☐ Decode//encode open and closed syllables ☐ Decode/encode common prefixes and suffixes ☐ Decode/encode silent letter combinations

Group	Students	Target Skill	Lesson
1			
2			
3			
4			
5			

Complete Picture Classroom Data Analysis

Class Overview

Foundations

Print Concepts / Phonological Awareness

STAR	# of students	Curriculum Assessment	# of students	Classwork/ Application	# of students	STAR	# of students	Curriculum Assessment	# of students	Classwork/ Application	# of students
At/Above Standard		Above the Standard		Above the Standard		Above the Standard		Above the Standard		Above the Standard	
On Watch/ Proficient		At/Near the Standard		At/Near the Standard		At/Near the Standard		At/Near the Standard		At/Near the Standard	
Intervention/ Basic		Below the Standard		Below the Standard		Below the Standard		Below the Standard		Below the Standard	

Phonics and Word Analysis / Fluency

STAR	# of students	Curriculum Assessment	# of students	Classwork/ Application	# of students	STAR	# of students	Curriculum Assessment	# of students	Classwork/ Application	# of students
Above the Standard		Above the Standard		Above the Standard		Above the Standard		Above the Standard		Above the Standard	
At/Near the Standard		At/Near the Standard		At/Near the Standard		At/Near the Standard		At/Near the Standard		At/Near the Standard	
Below the Standard		Below the Standard		Below the Standard		Below the Standard		Below the Standard		Below the Standard	

Analysis

Do all data sources show a similar picture?			YES	NO
If not, which one is the outlier?	STAR	Curriculum Assessment	Classwork	
What is the possible reason for difference?				

What is the biggest overall strength?	Print Concepts	PA	Phonics	Fluency
Does this strength align to the instructional focus up to this point?			YES	NO
Notes:				

What is the biggest growth opportunity?	Print Concepts	PA	Phonics	Fluency
Has there been sufficient instruction to support this standard?			YES	NO
Notes:				

Complete Picture Classroom Data Analysis

Class Breakdown

Student		STAR	Curriculum Assessment	Classwork Application	Notes
Last	First				

Complete Picture Classroom Data Analysis

Reading Poetry & Prose

Class Overview

Literary Elements

FAST	# of students	Curriculum Assessment	# of students	Classwork/ Application	# of students
Above the Standard		Above the Standard		Above the Standard	
At/Near the Standard		At/Near the Standard		At/Near the Standard	
Below the Standard		Below the Standard		Below the Standard	

Perspective and Point of View

FAST	# of students	Curriculum Assessment	# of students	Classwork/ Application	# of students
Above the Standard		Above the Standard		Above the Standard	
At/Near the Standard		At/Near the Standard		At/Near the Standard	
Below the Standard		Below the Standard		Below the Standard	

Poetry

FAST	# of students	Curriculum Assessment	# of students	Classwork/ Application	# of students
Above the Standard		Above the Standard		Above the Standard	
At/Near the Standard		At/Near the Standard		At/Near the Standard	
Below the Standard		Below the Standard		Below the Standard	

Theme

FAST	# of students	Curriculum Assessment	# of students	Classwork/ Application	# of students
Above the Standard		Above the Standard		Above the Standard	
At/Near the Standard		At/Near the Standard		At/Near the Standard	
Below the Standard		Below the Standard		Below the Standard	

Analysis

Do all data sources show a similar picture?		YES	NO	
If not, which one is the outlier?	**FAST**	**Curriculum Assessment**	**Classwork**	
What is the possible reason for difference?				
What is the biggest overall strength?	**Literary Elements**	**Perspective and POV**	**Poetry**	**Theme**
Does this strength align to the instructional focus up to this point?			YES	NO
Notes:				

What is the biggest growth opportunity?	**Literary Elements**	**Perspective and POV**	**Poetry**	**Theme**
Has there been sufficient instruction to support this standard?			YES	NO
Notes:				

Class Overview

Reading Informational Text

Argument						Central Idea					
FAST	# of students	Curriculum Assessment	# of students	Classwork/ Application	# of students	FAST	# of students	Curriculum Assessment	# of students	Classwork/ Application	# of students
Above the Standard		Above the Standard		Above the Standard		Above the Standard		Above the Standard		Above the Standard	
At/Near the Standard		At/Near the Standard		At/Near the Standard		At/Near the Standard		At/Near the Standard		At/Near the Standard	
Below the Standard		Below the Standard		Below the Standard		Below the Standard		Below the Standard		Below the Standard	

Purpose and Perspective						Structure					
FAST	# of students	Curriculum Assessment	# of students	Classwork/ Application	# of students	FAST	# of students	Curriculum Assessment	# of students	Classwork/ Application	# of students
Above the Standard		Above the Standard		Above the Standard		Above the Standard		Above the Standard		Above the Standard	
At/Near the Standard		At/Near the Standard		At/Near the Standard		At/Near the Standard		At/Near the Standard		At/Near the Standard	
Below the Standard		Below the Standard		Below the Standard		Below the Standard		Below the Standard		Below the Standard	

Analysis

Do all data sources show a similar picture?			YES	NO
If not, which one is the outlier?	FAST		Curriculum Assessment	Classwork
What is the possible reason for difference?				

What is the biggest overall strength?	Agument	Central Idea	Purpose & Perspective	Structure
Does this strength align to the instructional focus up to this point?			YES	NO
Notes:				

What is the biggest growth opportunity?	Agument	Central Idea	Purpose & Perspective	Structure
Has there been sufficient instruction to support this standard?			YES	NO
Notes:				

Class Overview

Reading Across Genres and Vocabulary

Comparative Reading

FAST	# of students	Curriculum Assessment	# of students	Classwork/ Application	# of students
Above the Standard		Above the Standard		Above the Standard	
At/Near the Standard		At/Near the Standard		At/Near the Standard	
Below the Standard		Below the Standard		Below the Standard	

Context and Connotation

FAST	# of students	Curriculum Assessment	# of students	Classwork/ Application	# of students
Above the Standard		Above the Standard		Above the Standard	
At/Near the Standard		At/Near the Standard		At/Near the Standard	
Below the Standard		Below the Standard		Below the Standard	

Interpreting Figurative Language

FAST	# of students	Curriculum Assessment	# of students	Classwork/ Application	# of students
Above the Standard		Above the Standard		Above the Standard	
At/Near the Standard		At/Near the Standard		At/Near the Standard	
Below the Standard		Below the Standard		Below the Standard	

Morphology

FAST	# of students	Curriculum Assessment	# of students	Classwork/ Application	# of students
Above the Standard		Above the Standard		Above the Standard	
At/Near the Standard		At/Near the Standard		At/Near the Standard	
Below the Standard		Below the Standard		Below the Standard	

Paraphrase and Summarize

FAST	# of students	Curriculum Assessment	# of students	Classwork/ Application	# of students
Above the Standard		Above the Standard		Above the Standard	
At/Near the Standard		At/Near the Standard		At/Near the Standard	
Below the Standard		Below the Standard		Below the Standard	

Analysis

Do all data sources show a similar picture?		YES	NO
If not, which one is the outlier?	**FAST**	**Curriculum Assessment**	**Classwork**
What is the possible reason for difference?			

What is the biggest overall strength?	**Comparitive Reading**	**Context & Connotation**	**Figurative Language**	**Morphology**	**Paraphrase**	**Summarize**
Does this strength align to the instructional focus up to this point?			YES	NO		
Notes:						

What is the biggest growth opportunity?	**Comparitive Reading**	**Context & Connotation**	**Figurative Language**	**Morphology**	**Paraphrase**	**Summarize**
Does this strength align to the instructional focus up to this point?			YES	NO		
Notes:						

Complete Picture Classroom Data Analysis

Class Breakdown

Student		FAST	Curriculum Assessment	Classwork Application	Notes
Last	First				

Goal: What do I hope to accomplish? What challenge do I seek to address?

Rationale: What data prompted me to make this instructional plan?

Identify Action Steps: What specific change(s) will I implement in my classroom?	**Set a Timeline**: When will I Implement the change?	**Support Plan**: (For the teacher) What supports do ***I need*** to be successful?	**Monitor Fidelity**: How will I measure the degree to which the instruction is provided as designed?	**Monitor Progress:** How and when will I measure student progress toward the goal?	**Evaluate Success**: How will I know if the change I implemented improved outcomes? **Decision Rules** What will I consider a Positive student response? Questionable response? Poor response?

Reflect and Adjust:
How effectively was the initial issue resolved?
What new concerns have arisen?
Should I continue with the instructional plan, fade or modify my goal?

FOCUS ON NSDC'S STANDARDS

COACHES HELP MINE THE DATA

Joellen Killion is deputy executive director of National Staff Development Council.

Data-driven decisions and actions target identified needs and fit more appropriately within the context in which they are implemented. Teacher leaders acting as data coaches create a culture that values data as information for improved professional practice. When those data relate to student learning, coaches have five key responsibilities to help teachers use data effectively. They include:

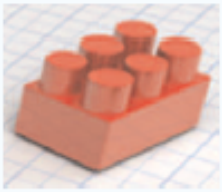
- Creating a safe, blame-free environment for data analysis;
- Teaching data access and organization;
- Teaching analysis and interpretation of data from multiple sources;
- Engaging teachers in data analysis and interpretation to determine student and teacher needs; and
- Designing an action plan that incorporates professional learning to improve student achievement based on data analysis.

Creating a safe environment

When the culture of a school in which teachers work provides a safe, blame-free environment for data use, teachers more eagerly seek data to inform their practice. The key to creating safety in data analysis is keeping individual teacher data private, beginning with developing teachers' skills in understanding and analyzing data, and setting norms that include keeping the focus on student learning. A safe environment keeps the focus on issues rather than people, engages people in an appreciative inquiry approach rather than a deficit approach to a situation, and results in a plan of action that energizes and motivates people. Teachers can identify and analyze what is working for their students by focusing on what is working, seeking to understand the reasons for the success, and replicating those practices. Key questions coaches and teachers ask are:

What's working? How do we know? What makes it work? Teachers will have an easier time confronting the realities of student learning gaps and how to address them if they are comfortable with the data and trust the process and the facilitator.

Facilitation of data analysis promotes safety. The facilitator works with the team of teachers to set norms and uses a protocol, or a guideline, for the data conversation. The protocol makes the process known to all. A data analysis protocol such as the one on p. 8 offers a set of guiding questions for looking at student data whether those data are from state tests, common district assessments, or classroom assessments.



DATA-DRIVEN

Staff development that improves the learning of all students uses disaggregated student data to determine adult learning priorities, monitor progress, and help sustain continuous improvement.

Teaching data access and organization

The accessibility and format of data make a difference in how easy they are to use. When data coaches help teachers know how to access data and organize them into user-friendly formats, teachers are likely to use data more readily. The opposite is true too. When teachers can't access data easily from their classroom or school computers or when they wait weeks to receive data reports, they are likely to avoid using data. Data coaches can begin by teaching how to access data and how to request various forms of reports. In the process, the coach provides tips on which reports will answer specific questions.

For more information about NSDC's Standards for Staff Development, see www.nsdc.org/standards/index.cfm

Teaching data analysis and interpretation

Data coaches help teachers know how to analyze and interpret data. Essentially, the coach prepares teachers to engage in analysis by ensuring that they have fundamental knowledge. Questions such as the ones below can be used to prepare teachers for analyzing any data set.

1. What is this assessment measuring?
2. What are the characteristics of the students involved in the assessment?
3. What type of assessment was used?
4. What type of conclusions can be drawn from this type of assessment?
5. How many students were assessed?

The coach may model or engage teachers in analyzing schoolwide or district data using a protocol so teachers are familiar with the process before they work on their own data.

Designing action plans with professional learning

The data analysis and interpretation process includes moving from data to action. Once data are analyzed, the work continues with forming conclusions, identifying potential root causes, and developing plans of action that include goals, indicators of success, timelines for achieving the goals, and benchmarks to mark progress. For example, if teachers discover from an analysis of state tests and the district common benchmark assessments that students' problem-solving skills are below standard, then they consider five possible root causes that might contribute to the problem and which they can control. These areas are instruction, curriculum, time, teachers' content knowledge and/or pedagogy, and instructional resources. Frequently, when teachers engage in identifying root causes they will identify causes that are not within their realm of control, such as student demographics. Coaches can accelerate identification of appropriate interventions if they help teachers focus on what teachers can change to improve student academic success. Teachers might write a goal such as:

Third quarter math goal: 85% of the 5th-grade students will demonstrate proficiency in problem solving on the third quarter benchmark assessment.

Coaches, working collaboratively with teachers, identify the specific actions to incorporate into their plan. For example, teachers may commit to learn multiple problem-solving strategies and ways to help students determine which is most appropriate to use. Then teachers may develop common lesson plans in which they integrate their new knowledge. Teachers may look at the number of opportunities they provide students to practice problem solving in both guided and independent situations. Finally, they may develop a common assessment to measure student progress midway through third quarter.

When data coaches build teachers' knowledge about data analysis and assessments, develop their competence and comfort with data analysis, and facilitate teacher professional learning and planning to move from data to action, teachers and students benefit. Teachers have the information to focus instruction more specifically on student learning needs. They can also focus their own professional learning on specific student learning needs thereby increasing its purposefulness and its results. Students are the big winners because they are the beneficiaries of refined teacher instructional practice. ◆

DATA ANALYSIS PROTOCOL

Analyzing data: Guiding questions

1. What areas of students' performance are at or above expectations?
2. What areas of student performance are below expectations?
3. How did various groups (e.g. gender, race, socioeconomic, disability, English proficiency) of students perform?
4. What are other data telling us about student performance in this area?
5. What confirms what we already know? What challenges what we thought?
6. What important observations seem to "pop out" from the data? Surprising observations? Unexpected observations?
7. What patterns or trends appear?
8. What similarities and differences exist across various data sources?
9. What do we observe at the school level? The grade level? The class level?
10. What are some things we have not yet explored? What other data do we want to examine?