INTERVENTION CENTRAL

RTI Toolkit: A Practical Guide for Schools

Developing Effective Tier 2 & Tier 3 RTI Reading Interventions: Guidelines for Schools

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Contents

Jim Wright
364 Long Road Tully, NY 13159
Email: jim@jimwrightonline.com

Workshop Materials Available at: http://www.interventioncentral.org/CCIRA

Critical RTI Elements: A Checklist

The elements below are important components of the RTI model. Review each element and discuss how to implement it in your school or district:

Tier 1 Interventions: Evidence-Based & Implemented With Integrity		
Tier 1: Classroom Interventions. The classroom teacher is the 'first responder' for students with academic delays. Classroom efforts to instruct and individually support the student should be documented.		
Adequately Documented?	RTI Element	If this element is incomplete, missing, or undocumented...
☐ YES ☐ NO	Tier 1: High-Quality Core Instruction. The student receives high-quality core instruction in the area of academic concern. 'High quality' is defined as at least 80% of students in the classroom or grade level performing at or above gradewide academic screening benchmarks through classroom instructional support alone (Christ, 2008).	Inadequate or incorrectly focused core instruction may be an explanation for the student's academic delays.
☐ YES ☐ NO	Tier 1: Classroom Intervention. The classroom teacher gives additional individualized academic support to the student beyond that provided in core instruction. • The teacher documents those strategies on a Tier 1 intervention plan. • Intervention ideas contained in the plan meet the district's criteria as 'evidence-based'. • Student academic baseline and goals are calculated, and progress-monitoring data are collected to measure the impact of the plan. • The classroom intervention is attempted for a period sufficiently long (e.g., 4-8 instructional weeks) to fully assess its effectiveness.	An absence of individualized classroom support or a poorly focused classroom intervention plan may contribute to the student's academic delays.
☐ YES ☐ NO	Tier 1: Intervention Integrity. Data are collected to verify that the intervention is carried out with integrity (Gansle & Noell, 2007; Roach & Elliott, 2008). Relevant intervention-integrity data include information about: • Frequency and length of intervention sessions. • Ratings by the interventionist or an independent observer about whether all steps of the intervention are being conducted correctly.	Without intervention-integrity data, it is impossible to discern whether academic underperformance is due to the student's 'non-response' to intervention or due to an intervention that was poorly or inconsistently carried out.

Tier 1: Decision Point: Teacher Consultation/Team Meeting		
Decision Points: At Tier 1, the school has set up procedures for teachers and other staff to discuss students who need intervention, to analyze data about their school performance, to design intervention and progress-monitoring plans, and to schedule follow-up meetings on the student(s).		
Adequately Documented?	RTI Element	If this element is incomplete, missing, or undocumented...
☐ YES ☐ NO	Tier 1: Classroom Teacher Problem-Solving Meetings. The school has set up a forum for teachers to discuss students who need Tier 1 (classroom) interventions and to schedule follow-up meetings to evaluate progress. That forum takes one of two forms: • *Consultant.* The school compiles a list of consultants in the school who can meet with individual teachers or grade-level teams to discuss specific students and to help the teacher to create and to document an intervention plan. • *Grade-Level Team.* The school trains grade-level teams to conduct problem-solving meetings. Teachers are expected	If the school does not provide teachers with guidance and support in creating Tier 1 intervention plans, it cannot answer whether each teacher is consistently following recommended practices in developing those plans.

	to bring students to regularly scheduled team meetings to discuss them and to create and document an intervention plan.	

Tier 2/3 Interventions: Evidence-Based & Implemented With Integrity		
Tiers 2 & 3: Supplemental Interventions. Interventions at Tiers 2 & 3 supplement core instruction and specifically target the student's academic deficits.		
Adequately Documented?	RTI Element	If this element is incomplete, missing, or undocumented...
☐ YES ☐ NO	Tier 2/3 Interventions: Minimum Number & Length. The student's cumulative RTI information indicates that an adequate effort in the general-education setting has been made to provide supplemental interventions at Tiers 2 & 3. The term 'sufficient effort' includes the expectation that within the student's general education setting: • A minimum number of separate Tier 2/3 intervention trials (e.g., three) are attempted. • Each intervention trial lasts a minimum period of time (e.g., 6-8 instructional weeks).	A foundation assumption of RTI is that a general-education student with academic difficulties is typical and simply needs targeted instructional support to be successful. Therefore, strong evidence (i.e., several documented, 'good-faith' intervention attempts) is needed before the school can move beyond the assumption that the student is typical to consider whether there are possible 'within-child' factors such as a learning disability that best explain the student's academic difficulties.
☐ YES ☐ NO	Tier 2/3 Interventions: Essential Elements. Each Tier 2/3 intervention plan shows evidence that: • Instructional programs or practices used in the intervention meet the district's criteria of 'evidence-based. • The intervention has been selected because it logically addressed the area(s) of academic deficit for the target student (e.g., an intervention to address reading fluency was chosen for a student whose primary deficit was in reading fluency). • If the intervention is group-based, all students enrolled in the Tier 2/3 intervention group have a shared intervention need that could reasonably be addressed through the group instruction provided. • The student-teacher ratio in the group-based intervention provides adequate student support. NOTE: For Tier 2, group sizes should be capped at 7 students. Tier 3 interventions may be delivered in smaller groups (e.g., 3 students or fewer) or individually. • The intervention provides contact time adequate to the student academic deficit. NOTE: Tier 2 interventions should take place a minimum of 3-5 times per week in sessions of 30 minutes or more; Tier 3 interventions should take place daily in sessions of 30 minutes or more (Burns & Gibbons, 2008).	Supplemental intervention programs are compromised if they are not based on research, are too large, or include students with very discrepant intervention needs. Schools cannot have confidence in the impact of such potentially compromised supplemental intervention programs.
☐ YES ☐ NO	Tier 2/3 Interventions: Intervention Integrity. Data are collected to verify that the intervention is carried out with integrity (Gansle & Noell, 2007; Roach & Elliott, 2008). Relevant intervention-integrity data include information about:	Without intervention-integrity data, it is impossible to discern whether academic underperformance is due to the

	• Frequency and length of intervention sessions. • Ratings by the interventionist or an independent observer about whether all steps of the intervention are being conducted correctly.	student's 'non-response' to intervention or due to an intervention that was poorly or inconsistently carried out.

Decision Point for Tier 2: Data Analysis Team

Decision Points: At Tier 2, the school has set up procedures for teachers and other staff to discuss students who need intervention, to analyze data about their school performance, to design intervention and progress-monitoring plans, and to schedule follow-up meetings on the student(s).

Adequately Documented?	RTI Element	If this element is incomplete, missing, or undocumented...
☐ YES ☐ NO	Tier 2: Data Analysis Team. The school has established a Data Analysis Team at Tier 2 to evaluate the school-wide screening data collected three times per year and to place students who need Tier 2 interventions. The Data Analysis Team • is knowledgeable of all intervention personnel and evidence-based programs available for Tier 2 interventions. • knows how to identify students who have failed to meet expected screening benchmarks • can use the benchmarks to estimate the risk for academic failure of each student picked up in the screening • is able to match identified students to appropriate interventions while providing students with sufficient instructional support. • can document the Tier 2 intervention set up for each student NOTE: It is also recommended that the Data Analysis Team meet at least once *between* each screening period to review the progress of students on Tier 2 intervention, to apply screening benchmarks, and to decide for each student whether to maintain the current intervention, change the Tier 2 intervention, move the student to more intensive Tier 3 intervention, or (if improved) discontinue the Tier 2 intervention and transition the student to Tier 1 support alone.	If the school lacks a functioning Data Analysis Team, there are likely to be several important questions left unanswered, such as the following: • Are screening data being used to bring consistency and objectivity to the selection of students who need Tier 2 intervention? • Are the intervention programs at Tier 2 'evidence-based'? • Is the progress of students receiving Tier 2 intervention reviewed every 6-8 instructional weeks to ensure that students don't remain in ineffective interventions and don't continue to occupy intervention 'slots' after they have closed the academic gap with peers?

Decision Point for Tier 3: RTI Problem-Solving Team

Decision Points: At Tier 3, the school has set up procedures for teachers and other staff to discuss students who need intervention, to analyze data about their school performance, to design intervention and progress-monitoring plans, and to schedule follow-up meetings on the student(s).

Adequately Documented?	RTI Element	If this element is incomplete, missing, or undocumented...
☐ YES ☐ NO	Tier 3: RTI Problem-Solving Team. The school has established an 'RTI Problem-Solving Team' to create customized intervention plans for individual students who require Tier 3 (intensive) interventions. The RTI Problem-Solving Team: • has created clear guidelines for when to accept a Tier 3 student referral. • follows a consistent, structured problem-solving model during its meetings. • schedules initial meetings to discuss student concerns and follow-up meetings to review student progress and judge whether the intervention plan is effective.	The RTI Problem-Solving Team is the 'decision point' in the school that ensures that students with Tier 3 academic or behavioral needs receive interventions that are well-documented, well-implemented, and sufficiently intensive to match the student's serious deficits. Most Special Education Eligibility Teams use Tier 3

	• develops written intervention plans with sufficient detail to ensure that the intervention is implemented with fidelity across settings and people. • builds an 'intervention bank' of research-based intervention ideas for common student academic and behavioral concerns.	Problem-Solving Teams as a quality-control mechanism and gate-keeper that prevents students from being referred for possible special education services until the school has first exhausted all general-education service options.

School-Wide Academic Screenings: General Outcome Measures and Skill-Based Measures		
Peer Norms: The school selects efficient measures with good technical adequacy to be used to screen all students at a grade level in targeted academic areas.		
Adequately Documented?	RTI Element	If this element is incomplete, missing, or undocumented...
☐ YES ☐ NO	Selection of Academic Screening Measures. The school has selected appropriate grade-level screening measures for the academic skill area(s) in which the target student struggles (Hosp, Hosp & Howell, 2007). The selected screening measure(s): • Have 'technical adequacy' as grade-level screeners—and have been researched and shown to predict future student success in the academic skill(s) targeted. • Are general enough to give useful information for at least a full school year of the developing academic skill (e.g., General Outcome Measure or Skill-Based Mastery Measure). • Include research norms, proprietary norms developed as part of a reputable commercial assessment product, or benchmarks to guide the school in evaluating the risk level for each student screened.	Academic screening measures provide a shared standard for assessing student academic risk. If appropriate gradewide academic screening measure(s) are not in place, the school cannot efficiently identify struggling students who need additional intervention support or calculate the relative probability of academic success for each student.
☐ YES ☐ NO	Local Norms Collected via Gradewide Academic Screenings at Least 3 Times Per Year. All students at each grade level are administered the relevant academic screening measures at least three times per school year. The results are compiled to provide local norms of academic performance.	In the absence of regularly updated local screening norms, the school cannot easily judge whether a particular student's skills are substantially delayed from those of peers in the same educational setting.

References

Burns, M. K., & Gibbons, K. A. (2008). Implementing response-to-intervention in elementary and secondary schools. Routledge: New York.

Christ, T. (2008). Best practices in problem analysis. In A. Thomas & J. Grimes (Eds.), *Best practices in school psychology V* (pp. 159-176). Bethesda, MD: National Association of School Psychologists.

Fuchs, L. (2003). Assessing intervention responsiveness: Conceptual and technical issues. *Learning Disabilities Research & Practice, 18*(3), 172-186.

Gansle, K. A., & Noell, G. H. (2007). The fundamental role of intervention implementation in assessing response to intervention. In S. R. Jimerson, M. K. Burns, & A. M. VanDerHeyden (Eds.), *Response to intervention: The science and practice of assessment and intervention* (pp. 244-251). New York: Springer Publishing.

Hosp, M. K., Hosp, J. L., & Howell, K. W. (2007). *The ABCs of CBM: A practical guide to curriculum-based measurement.* New York: Guilford Press.

Howell, K. W., Hosp, J. L., & Kurns, S. (2008). Best practices in curriculum-based evaluation. In A. Thomas & J. Grimes (Eds.), *Best practices in school psychology V* (pp.349-362). Bethesda, MD: National Association of School Psychologists.

Roach, A. T., & Elliott, S. N. (2008). Best practices in facilitating and evaluating intervention integrity. In A. Thomas & J. Grimes (Eds.), *Best practices in school psychology V* (pp.195-208).

Shapiro, E. S. (2008). Best practices in setting progress-monitoring monitoring goals for academic skill improvement. In A. Thomas & J. Grimes (Eds.), *Best practices in school psychology V* (pp. 141-157). Bethesda, MD: National Association of School Psychologists.

Witt, J. C., VanDerHeyden, A. M., & Gilbertson, D. (2004). Troubleshooting behavioral interventions. A systematic process for finding and eliminating problems. *School Psychology Review, 33*, 363-383.

Tier 1, 2, 3: Internet Sources for Research-Based Interventions

Listed below are Internet sources to help schools to find or evaluate academic and behavioral intervention programs and strategies appropriate for Tiers 1, 2, and 3.

Internet Intervention Source
Best Evidence Encyclopedia (*http://www.bestevidence.org/*). This site provides reviews of evidence-based reading and math programs. The website is sponsored by the Johns Hopkins University School of Education's Center for Data-Driven Reform in Education (CDDRE).
Evidence-Based Intervention Network (*http://ebi.missouri.edu/*). Sponsored by the School Psychology program at the University of Missouri, this site contains academic and behavioral intervention scripts suitable for classroom use.
Florida Center for Reading Research (*http://www.fcrr.org*). This website contains a search tool to find lesson plans to teach the five components of reading: *http://www.fcrr.org/FAIR_Search_Tool/FAIR_Search_Tool.aspx*
Instructional Intervention Tools Page (*http://www.rti4success.org/instructionTools*). Sponsored by the National Center on RTI, this page provides ratings to intervention programs in reading, math, and writing. Users can streamline their search by subject and grade level.
Intervention Central (*http://www.interventioncentral.org*). The site includes a range of academic and behavioral intervention ideas suitable for classroom use.
What Works Clearinghouse (*http://ies.ed.gov/ncee/wwc/*). Sponsored by the US Dept. of Education, this website has two major sources of intervention information: (1) Practice Guides: These free 60-100 page guides summarize current research for teachers on intervention topics such as math instruction, reading interventions, and behavior management; (2) Program Reviews: This website reviews core instruction and intervention programs in reading/writing, math/science, and other academic areas. The site reviews existing studies and draws conclusions about whether specific intervention programs show evidence of effectiveness.

RTI: Screening & Progress-Monitoring Tools

Check out these 'tools' pages to evaluate RTI screening and progress-monitoring assessments:

Internet Assessment Source
National Center on RTI (*http://www.rti4success.org/*). This site includes two 'tools' pages that offer descriptions and ratings for assessments: • RTI School-Wide Screeners (*http://www.rti4success.org/screeningTools)*. RTI school-wide academic screeners are administered at least 3 times per year to compare local students to research-derived benchmark norms. The results are used to identify students who need Tier 2/3 intervention services. • RTI Progress-Monitoring Mastery Measures (*http://www.rti4success.org/progressMonitoringMasteryTools)*. Students on RTI interventions are monitored (2x per month for Tier 2; 1x per week for Tier 3). This Tools page compares sets of RTI progress-monitoring tools.

Academic Interventions 'Critical Components' Checklist

This checklist summarizes the essential components of academic interventions. When preparing a student's Tier 1, 2, or 3 academic intervention plan, use this document as a 'pre-flight checklist' to ensure that the academic intervention is of high quality, is sufficiently strong to address the identified student problem, is fully understood and supported by the teacher, and can be implemented with integrity. NOTE: While the checklist refers to the 'teacher' as the interventionist, it can also be used as a guide to ensure the quality of interventions implemented by non-instructional personnel, adult volunteers, parents, and peer (student) tutors.

Directions: When creating an academic intervention plan, review that plan by comparing it to each of the items below.

- If a particular intervention element is missing or needs to be reviewed, check the 'Critical Item?' column for that element.
- Write any important notes or questions in the 'Notes' column.

Allocating Sufficient Contact Time & Assuring Appropriate Student-Teacher Ratio

The cumulative time set aside for an intervention and the amount of direct teacher contact are two factors that help to determine that intervention's 'strength' (Yeaton & Sechrest, 1981).

Critical Item?	Intervention Element	Notes
☐	**Time Allocated.** The time set aside for the intervention is appropriate for the type and level of student problem (Burns & Gibbons, 2008; Kratochwill, Clements & Kalymon, 2007). When evaluating whether the amount of time allocated is adequate, consider: • Length of each intervention session. • Frequency of sessions (e.g.., daily, 3 times per week) • Duration of intervention period (e.g., 6 instructional weeks)	
☐	**Student-Teacher Ratio.** The student receives sufficient contact from the teacher or other person delivering the intervention to make that intervention effective. NOTE: Generally, supplemental intervention groups should be limited to 6-7 students (Burns & Gibbons, 2008).	

Matching the Intervention to the Student Problem

Academic interventions are not selected at random. First, the student academic problem(s) is defined clearly and in detail. Then, the likely explanations for the academic problem(s) are identified to understand which intervention(s) are likely to help—and which should be avoided.

Critical Item?	Intervention Element	Notes
☐	**Problem Definition.** The student academic problem(s) to be addressed in the intervention are defined in clear, specific, measureable terms (Bergan, 1995; Witt, VanDerHeyden & Gilbertson, 2004). The full problem definition describes: • *Conditions*. Describe the environmental conditions or task demands in place when the academic problem is observed. • *Problem Description*. Describe the actual observable academic behavior in which the student is engaged. Include rate, accuracy, or other quantitative information of student performance. • *Typical or Expected Level of Performance*. Provide a typical or expected performance criterion for this skill or behavior. Typical or expected academic performance can be calculated using a variety of sources,	
☐	**Appropriate Target.** Selected intervention(s) are appropriate for the identified student problem(s) (Burns, VanDerHeyden & Boice, 2008). TIP: Use the Instructional Hierarchy (Haring et al., 1978) to select	

	academic interventions according to the four stages of learning: • *Acquisition*. The student has begun to learn how to complete the target skill correctly but is not yet accurate in the skill. Interventions should improve accuracy. • *Fluency*. The student is able to complete the target skill accurately but works slowly. Interventions should increase the student's speed of responding (fluency) as well as to maintain accuracy. • *Generalization*. The student may have acquired the target skill but does not typically use it in the full range of appropriate situations or settings. Or the student may confuse the target skill with 'similar' skills. Interventions should get the student to use the skill in the widest possible range of settings and situations, or to accurately discriminate between the target skill and 'similar' skills. • *Adaptation*. The student is not yet able to modify or adapt an existing skill to fit novel task-demands or situations. Interventions should help the student to identify key concepts or elements from previously learned skills that can be adapted to the new demands or situations.	
☐	'Can't Do/Won't Do' Check. The teacher has determined whether the student problem is primarily a skill or knowledge deficit ('can't do') or whether student motivation plays a main or supporting role in academic underperformance ('wont do'). If motivation appears to be a significant factor contributing to the problem, the intervention plan includes strategies to engage the student (e.g., high interest learning activities; rewards/incentives; increased student choice in academic assignments, etc.) (Skinner, Pappas & Davis, 2005; Witt, VanDerHeyden & Gilbertson, 2004).	

Incorporating Effective Instructional Elements

These effective 'building blocks' of instruction are well-known and well-supported by the research. They should be considered when selecting or creating any academic intervention.

Critical Item?	Intervention Element	Notes
☐	Explicit Instruction. Student skills have been broken down "into manageable and deliberately sequenced steps" and the teacher provided" overt strategies for students to learn and practice new skills" (Burns, VanDerHeyden & Boice, 2008, p.1153).	
☐	Appropriate Level of Challenge. The student experienced sufficient success in the academic task(s) to shape learning in the desired direction as well as to maintain student motivation (Burns, VanDerHeyden & Boice, 2008).	
☐	Active Engagement. The intervention ensures that the student is engaged in 'active accurate responding' (Skinner, Pappas & Davis, 2005).at a rate frequent enough to capture student attention and to optimize effective learning.	
☐	Performance Feedback. The student receives prompt performance feedback about the work completed (Burns, VanDerHeyden & Boice, 2008).	
☐	Maintenance of Academic Standards. If the intervention includes any accommodations to better support the struggling learner (e.g., preferential seating, breaking a longer assignment into smaller chunks), those accommodations do not substantially lower the academic standards against which the student is to be evaluated and are not likely to reduce the student's rate of learning (Skinner, Pappas & Davis, 2005).	

Verifying Teacher Understanding & Providing Teacher Support

The teacher is an active agent in the intervention, with primary responsibility for putting it into practice in a busy classroom. It is important, then, that the teacher fully understands how to do the intervention, believes that he or she can do it, and knows whom to seek out if there are problems with the intervention.

Critical Item?	Intervention Element	Notes
☐	Teacher Responsibility. The teacher understands his or her responsibility to implement the academic intervention(s) with integrity.	
☐	Teacher Acceptability. The teacher states that he or she finds the academic intervention feasible and acceptable for the identified student problem.	
☐	Step-by-Step Intervention Script. The essential steps of the intervention are written as an 'intervention script'--a series of clearly described steps—to ensure teacher understanding and make implementation easier (Hawkins, Morrison, Musti-Rao & Hawkins, 2008).	
☐	Intervention Training. If the teacher requires training to carry out the intervention, that training has been arranged.	
☐	Intervention Elements: Negotiable vs. Non-Negotiable. The teacher knows all of the steps of the intervention. Additionally, the teacher knows which of the intervention steps are 'non-negotiable' (they must be completed exactly as designed) and which are 'negotiable' (the teacher has some latitude in how to carry out those steps) (Hawkins, Morrison, Musti-Rao & Hawkins, 2008).	
☐	Assistance With the Intervention. If the intervention cannot be implemented as designed for any reason (e.g., student absence, lack of materials, etc.), the teacher knows how to get assistance quickly to either fix the problem(s) to the current intervention or to change the intervention.	

Documenting the Intervention & Collecting Data

Interventions only have meaning if they are done within a larger data-based context. For example, interventions that lack baseline data, goal(s) for improvement, and a progress-monitoring plan are 'fatally flawed' (Witt, VanDerHeyden & Gilbertson, 2004).

Critical Item?	Intervention Element	Notes
☐	Intervention Documentation. The teacher understands and can manage all documentation required for this intervention (e.g., maintaining a log of intervention sessions, etc.).	
☐	Checkup Date. Before the intervention begins, a future checkup date is selected to review the intervention to determine if it is successful. Time elapsing between the start of the intervention and the checkup date should be short enough to allow a timely review of the intervention but long enough to give the school sufficient time to judge with confidence whether the intervention worked.	
☐	Baseline. Before the intervention begins, the teacher has collected information about the student's baseline level of performance in the identified area(s) of academic concern (Witt, VanDerHeyden &	

	Gilbertson, 2004).	
☐	Goal. Before the intervention begins, the teacher has set a specific goal for predicted student improvement to use as a minimum standard for success (Witt, VanDerHeyden & Gilbertson, 2004). The goal is the expected student outcome by the checkup date if the intervention is successful.	
☐	Progress-Monitoring. During the intervention, the teacher collects progress-monitoring data of sufficient quality and at a sufficient frequency to determine at the checkup date whether that intervention is successful (Witt, VanDerHeyden & Gilbertson, 2004).	

References

Bergan, J. R. (1995). Evolution of a problem-solving model of consultation. *Journal of Educational and Psychological Consultation, 6(2),* 111-123.

Burns, M. K., & Gibbons, K. A. (2008). Implementing response-to-intervention in elementary and secondary schools. Routledge: New York.

Burns, M. K., VanDerHeyden, A. M., & Boice, C. H. (2008). Best practices in intensive academic interventions. In A. Thomas & J. Grimes (Eds.), *Best practices in school psychology V* (pp.1151-1162). Bethesda, MD: National Association of School Psychologists.

Haring, N.G., Lovitt, T.C., Eaton, M.D., & Hansen, C.L. (1978). *The fourth R: Research in the classroom*. Columbus, OH: Charles E. Merrill Publishing Co.

Hawkins, R. O., Morrison, J. Q., Musti-Rao, S., & Hawkins, J. A. (2008). Treatment integrity for academic interventions in real- world settings. *School Psychology Forum, 2*(3), 1-15.

Kratochwill, T. R., Clements, M. A., & Kalymon, K. M. (2007). Response to intervention: Conceptual and methodological issues in implementation. In Jimerson, S. R., Burns, M. K., & VanDerHeyden, A. M. (Eds.), Handbook of response to intervention: The science and practice of assessment and intervention. New York: Springer.

Skinner, C. H., Pappas, D. N., & Davis, K. A. (2005). Enhancing academic engagement: Providing opportunities for responding and influencing students to choose to respond. *Psychology in the Schools, 42*, 389-403.

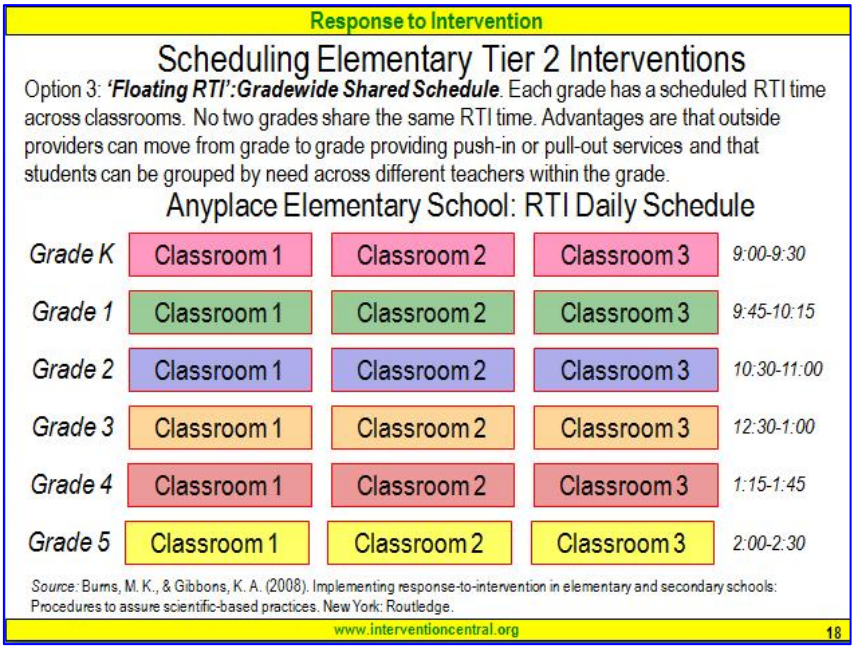
Witt, J. C., VanDerHeyden, A. M., & Gilbertson, D. (2004). Troubleshooting behavioral interventions. A systematic process for finding and eliminating problems. *School Psychology Review, 33*, 363-383.

Yeaton, W. M. & Sechrest, L. (1981). Critical dimensions in the choice and maintenance of successful treatments: Strength, integrity, and effectiveness. *Journal of Consulting and Clinical Psychology, 49*, 156-167.

Scheduling RTI Supplemental Services in Elementary Schools: Establish a School-Wide 'RTI Block'

Use a 'floating RTI' schedule to coordinate interventions and employ staff more efficiently. A common challenge when implementing RTI building-wide is to find the time in a student's schedule when supplemental RTI services (Tier 2 or 3) can be provided. Adoption of a 'floating RTI' period (Burns & Gibbons, 2008) can solve the scheduling problem as well as make more efficient use of teaching staff. In the 'floating RTI' solution, each grade level schedules a daily RTI block of at least 30 minutes. Additionally, no grade level's RTI time overlaps with that of any other grade level. NOTE: The figure below shows how floating-RTI time might be scheduled in a school:

One advantage of the floating-RTI scheduling option is that classroom teachers can take on the role of providing Tier 2 (supplemental, group-based) intervention services. Students would be grouped by need across different classrooms within the same grade. Some classroom teachers could work with small groups of students during the RTI period while those children in their class not requiring RTI services go to other classrooms for appropriate review or enrichment activities. Another advantage of the floating-RTI scheduling model is that supplemental intervention providers such as reading teachers can move from grade to grade, providing push-in or pull-out Tier 2 intervention services during each grade-level's RTI period—allowing these professional to work more efficiently and with fewer potential scheduling conflicts.



References

Burns, M. K., & Gibbons, K. A. (2008). *Implementing response-to-intervention in elementary and secondary schools*. Routledge: New York.

Scheduling RTI Supplemental Services in Middle and High Schools: Five Ideas

A basic expectation of RTI is that Tier 2 and 3 interventions should supplement, not replace, core instruction (Burns & Gibbons, 2008). Yet, finding the time in the schedules of struggling students to provide supplemental interventions can seem an insurmountable problem in middle and high schools. Indeed, in one recent survey, secondary-school principals flagged the issue of scheduling RTI interventions as one of the chief stumbling blocks to successful implementation of RTI (Sansosti, Noltemeyer & Goss, 2010).

There are no simple solutions to the thorny problem of scheduling RTI in secondary schools. Five possible scheduling strategies appear below—but they do have limitations. (For example, two ideas require course work outside of the school day, and depend upon active parent and student support and participation.) However, schools might find these suggestions to be a useful starting point as they brainstorm their own strategies to find the necessary time to deliver supplemental RTI services.

RTI Scheduling Strategy	Considerations
RTI Period. The school sets aside one period per day (e.g., 35-45 minutes) during which all students have the opportunity to receive appropriate academic support. Tier 2/3 students are provided with interventions during this period. Non-RTI students may use this time as a study hall or for other academically relevant activities.	Schools are often inventive in finding the time to schedule a schoolwide RTI period: (1) One idea is to trim a brief amount of time (e.g., five minutes) from each class period in the daily schedule to free up sufficient time for a stand-alone period. (2) In schools in which staff by contract must report before students or remain for a period after student dismissal each day, the school might lengthen the student day to overlap with the morning or afternoon additional staff time, potentially freeing up at least some of the minutes needed to cobble together an RTI period.
Zero Period. The school creates an optional period before the official start of the school day. During that 'zero period', students can elect to take core or elective courses. Those students needing RTI support can take an essential class during zero period, freeing up a time-slot during the school day to receive their RTI assistance.	This option requires that staff teaching zero-period classes receive extra compensation or adjustment of their school-day teaching schedule. Also, parents and students must make a firm commitment to attend zero-period classes, as these course entail additional work and potential inconvenience—including an earlier wake-up time and home responsibility for transportation.
Credit Recovery. A school that has access to online 'credit recovery' courses offers a struggling	The credit-recovery option requires that a student be self-motivated and willing to take on extra work in

student the option to take a core course online (via credit recovery) on his or her own time. This option frees up a time-slot during the school day for that student to get RTI assistance.	order to access RTI help. While this option may be s good fit for some students, many may lack the motivation and skill-set necessary for success in an online course taken outside of the school day.
Core Course with Extended Time. The school creates two-period sections of selected core-area classes (e.g., English, Introductory Algebra). General-education students are recruited for these extended-time sections because they were found through academic screening and/or archival records to need additional time to master course concepts and/or complete assigned work. The two-period course affords sufficient time for the teacher to provide core instruction and (at least potentially) to provide supplemental interventions in such areas as literacy.	Students placed in an extended-time core course that occupies two class periods may have to give up or postpone the opportunity to take another course. The extended-time course can be made more effective if the school can assign additional staff (e.g., co-teacher; trained paraprofessional) to push into the setting for at least part of the class to provide additional, more individualized support to struggling students.
Study Hall Schedule Coordinated with RTI Services. Using academic screening and/or archival records, the school identifies students who require RTI support. These students are scheduled as a bloc in a common study hall. The school then schedules RTI services at the same time as the study hall. Reading teachers, other trained interventionists, and/or tutors run short-term (5-10 week) Tier 2/3 group or individual sessions. Students are recruited from the study hall and matched to the appropriate RTI service based on shared need. They are discharged from the RTI service and rejoin the study hall if they show sufficient improvement. (NOTE: If the study hall meets daily, students in RTI groups who are in less-intensive interventions may be scheduled for alternate days between study hall and RTI groups.) This model is fluid: After each 5-10 week period, new RTI groups or tutoring assignments can be created, with students again being matched to these	A school that puts students with a shared intervention need into the same study hall should take care that these students do not feel stigmatized or singled out because of their academic delays. To expand the pool of RTI interventionists available during the common study hall, the school may wish to recruit paraprofessionals, community volunteers, or other non-instructional personnel to serve as tutors. Of course, these personnel will require training in research-based intervention practices, as well as ongoing supervision by school personnel.

services based on need.	

References

Burns, M. K., & Gibbons, K. A. (2008). *Implementing response-to-intervention in elementary and secondary schools*. Routledge: New York.

Sansosti, F. J., Noltemeyer, A., & Goss, S. (2010). Principals' perceptions of the importance and availability of response to intervention practices within high school settings. *School Psychology Review, 39*, 286-295.

Intervention Integrity: Methods to Track the Quality with Which Interventions Are Carried Out

As schools implement academic and behavioral interventions, they strive to implement those interventions with consistency and quality in classrooms that are fluid and fast-evolving instructional environments. On the one hand, teachers must be prepared to improvise moment by moment to meet classroom needs that suddenly arise: for example, reordering their lesson plans on the fly to maintain student engagement, spending unanticipated extra time answering student questions, or responding to sudden behavior problems. On the other hand, it is a basic expectation that specific RTI interventions will be carefully planned and carried out as designed.

So how can a school ensure that interventions are implemented with consistency even in the midst of busy and rapidly shifting instructional settings? The answer is for the school to find efficient ways to track 'intervention integrity'. After all, if the school lacks basic information about whether an intervention was done right, it cannot have confidence in the outcome of that intervention. And uncertainty about the quality with which the intervention was conducted will prevent the school from distinguishing truly 'non-responding' students from cases in which the intervention did not work simply because it was done incorrectly or inconsistently.

There are three general sources of data that can provide direct or indirect information about intervention integrity: (1) work products and records generated during the intervention, (2) teacher self-reports and self-ratings, and (3) direct structured observation of the intervention as it is being carried out. Each of these approaches has potential strengths and drawbacks.

- *Work products and records generated during the intervention*. Often student work samples and other records generated naturally as part of the intervention can be collected to give some indication of intervention integrity (Gansle & Noell, 2007). If student work samples are generated during an intervention, for example, the teacher can collect these work samples and write onto them the date, start time, and end time of the intervention session. Additionally, the teacher can keep a simple intervention contact log to document basic information for each intervention session, including the names of students attending the session (if a group intervention); date; and start time and end time of the intervention session.

  An advantage of using work products and other records generated as a natural part of the intervention is that they are easy to collect. However, such work products and records typically yield only limited information on intervention integrity such as whether interventions occurred with the expected frequency or whether each intervention session met for the appropriate length of time. (The Intervention Contact Log is an example of a documentation tool that would track frequency, length of session, and group size for group interventions—although the form can also be adapted as well for individual students.)

- *Teacher self-reports and self-ratings.* As another source of data, the teacher or other educators responsible for the intervention can periodically complete formal or informal self-ratings to provide information about whether the intervention is being carried out with integrity. Teacher self-ratings can be done a variety of ways. For example, the instructor may be asked at the end of each intervention session to complete a brief rating scale (e.g., 0 = intervention did not occur; 4 = intervention was carried out completely and correctly). Or the teacher may periodically (e.g., weekly) be emailed an intervention integrity self-rating to complete.

  One advantage of teacher self-ratings is that they are easy to complete, a definite advantage in classrooms

where time is a very limited resources. A second advantage of self-ratings, as with any form of self-monitoring of behaviors is that they may prompt teachers to higher levels of intervention compliance (e.g., Kazdin, 1989). A limitation of teacher self-reports and self-ratings, though, is that they tend to be biased in a positive direction (Gansle & Noell, 2007), possibly resulting in an overly optimistic estimate of intervention integrity. (The attached *Intervention Contact Log* includes a teacher self-rating component to be completed after each intervention session.)

- ❑ *Direct observation of the intervention steps*. The most direct way to measure the integrity of any intervention is through observation. First, the intervention is divided into a series of discrete steps to create an observation checklist. An observer would then visit the classroom with checklist in hand to watch the intervention being implemented and to note whether each step of the intervention is completed correctly (Roach & Elliott, 2008).

  The direct observation of intervention integrity yields a single figure: 'percentage of intervention steps correctly completed'. To compute this figure, the observer (1) adds up the number of intervention steps correctly carried out during the observation, (2) divides that sum by the total number of steps in the intervention, and (3) multiplies the quotient by 100 to calculate the percentage of steps in the intervention that were done in an acceptable manner. For example, a teacher conducts a 5-step reading fluency intervention with a student. The observer notes that 4 of the 5 steps were done correctly and that one was omitted. The observer divides the number of correctly completed steps (4) by the total number of possible steps (5) to get a quotient of .80. The observer then multiples the quotient by 100 (.80 X 100), resulting in an intervention integrity figure of 80 percent.

  The advantage of directly observing the steps of an intervention is that it gives objective, first-hand information about the degree to which that intervention was carried out with integrity. However, this approach does have several drawbacks. The first possible hurdle is one of trust: Teachers and other intervention staff may believe that the observer who documents the quality of interventions will use the information to evaluate global job performance rather than simply to give feedback about the quality of a single intervention (Wright, 2007).

  A second drawback of direct observations tied to an intervention checklist is that this assessment approach typically assigns equal weight to all intervention steps—when in actual fact some steps may be relatively unimportant while others may be critical to the success of the intervention (Gansle & Noell, 2007). Schools can construct interventions more precisely at the design stage to improve the ability of intervention-integrity checklists to distinguish the relative importance of various intervention elements. When first developing a step-by-step intervention script, schools should review the research base to determine which of the steps comprising a particular intervention are essential and which could be considered optional or open to interpretation by the interventionist. The teacher would then clearly understand which intervention steps are 'negotiable' or 'non-negotiable' (Hawkins, Morrison, Musti-Rao, & Hawkins, 2008). Of course, the intervention integrity checklist would also distinguish between the critical and non-critical intervention elements.(The *attached Intervention Script Builder* is a form that guides schools to break an intervention down into its constituent steps and to identify specific steps as 'negotiable' or 'non-negotiable' The form also has an 'Intervention Check' column that an independent observer can use to observe an intervention and verify that each step is correctly carried out.)

As schools develop procedures to measure the quality with which interventions are implemented, the majority will probably come to rely on an efficient mix of different data sources to verify intervention integrity-- including products generated during interventions, teacher self-ratings, and direct observations. (Schools can use the attached form

Selecting Methods to Track Intervention Integrity to brainstorm various ways to collect intervention integrity data on a particular student.)

Let's consider an intervention integrity example: The integrity of a small-group time-drill math computation intervention (Rhymer et al., 2002) could be measured concurrently in several ways. The teacher might maintain an intervention contact log (*record generated during the intervention*) that documents group size as well as the frequency and length of intervention sessions. As a part of each contact log entry, the teacher may be asked to rate the degree to which she was able to implement the intervention that day (*teacher self-rating*). The teacher could also collect examples of student worksheets (*work products*): saving at least one computation-drill worksheet per student from each intervention session and recording on each worksheet the date, start time, and end time for the computation time drill. These work products would supply at least indirect evidence that the intervention was being administered according to research recommendations (Rhymer et al., 2002) for math time drills. And finally, an observer might drop into the class at least once per week (*direct observation*) to observe the math time drill intervention using a step-by-step integrity checklist customized for that intervention. Collectively, these various direct and indirect measures would assure the school that the intervention plan is being implemented with sufficient integrity to inspire confidence in the outcome.

References

Gansle, K. A., & Noell, G. H. (2007). The fundamental role of intervention implementation in assessing response to intervention. In S. R. Jimerson, M. K. Burns, & A. M. VanDerHeyden (Eds.), *Response to intervention: The science and practice of assessment and intervention* (pp. 244-251). New York: Springer Publishing.

Hawkins, R. O., Morrison, J. Q., Musti-Rao, S., & Hawkins, J. A. (2008). Treatment integrity for academic interventions in real- world settings. *School Psychology Forum, 2*(3), 1-15.

Kazdin, A. E. (1989). *Behavior modification in applied settings* (4th ed.). Pacific Gove, CA: Brooks/Cole.

Rhymer, K. N., Skinner, C. H., Jackson, S., McNeill, S., Smith, T., & Jackson, B. (2002). The 1-minute explicit timing intervention: The influence of mathematics problem difficulty. *Journal of Instructional Psychology, 29*(4), 305-311.

Roach, A. T., & Elliott, S. N. (2008). Best practices in facilitating and evaluating intervention integrity. In A. Thomas & J. Grimes (Eds.), *Best practices in school psychology V* (pp.195-208).

Wright, J. (2007). *The RTI toolkit: A practical guide for schools*. Port Chester, NY: National Professional Resources, Inc.

Intervention Script Builder

Student Name: _____ Grade: _____

Teacher/Team: _____ Intervention Start Date: _____/_____/____

Description of the Target Academic or Behavior Concern: _____

Intervention Check	Intervention Preparation Steps: Describe any preparation (creation or purchase of materials, staff training, etc.) required for this intervention.	Negotiable? (Hawkins et al., 2008)
This step took place Y__ N__	1. _____	❑ Negotiable Step ❑ Non-Negotiable Step
This step took place Y__ N__	2. _____	❑ Negotiable Step ❑ Non-Negotiable Step
This step took place Y__ N__	3. _____	❑ Negotiable Step ❑ Non-Negotiable Step
Intervention Check	Intervention Steps: Describe the steps of the intervention. Include enough detail so that the procedures are clear to all who must implement them.	Negotiable? (Hawkins et al., 2008)
This step took place Y__ N__	4. _____	❑ Negotiable Step ❑ Non-Negotiable Step
This step took place Y__ N__	5. _____	❑ Negotiable Step ❑ Non-Negotiable Step
This step took place Y__ N__	6. _____	❑ Negotiable Step ❑ Non-Negotiable Step
This step took place Y__ N__	7. _____	❑ Negotiable Step ❑ Non-Negotiable Step
This step took place Y__ N__	8. _____	❑ Negotiable Step ❑ Non-Negotiable Step

Research Citation(s) / References: List the published source(s) that make this a 'scientifically based' intervention.

_____

Intervention Quality Check: How will data be collected to verify that this intervention is put into practice as it was designed? (Select at least one option.)

- ❑ Classroom Observation: Number of observations planned? _____

  Person responsible for observations?: _____

- ❑ Teacher Intervention Rating Log: How frequently will the teacher rate intervention follow-through?

  Daily___ Weekly ___

- ❑ Teacher Verbal Report: Who will check in with the teacher for a verbal report of how the

  intervention is progressing? _____

  Approximately when during the intervention period will this verbal 'check in' occur? _____

- ❑ Intervention Checklist: Select either the classroom teacher/team or an outside observer to use the completed *Intervention Script* Builder as a checklist to rate the quality of the intervention. Check the appropriate set of directions below:

  ___*Teacher Directions*: Make copies of this intervention script. Once per week, review the steps in the intervention script and note (Y/N) whether each step was *typically* followed. Then write any additional notes about the intervention in the blank below

  ___ *Independent Observer Directions*: Make copies of this intervention script. At several points during the intervention, make an appointment to observe the intervention in action. While observing the intervention, go through the steps in the intervention script and note (Y/N) whether each step was typically followed. Then write any additional notes about the intervention in the space below

  Intervention Observation Notes: _____

  _____

  _____

Reference
Hawkins, R. O., Morrison, J. Q., Musti-Rao, S., & Hawkins, J. A. (2008). Treatment integrity for academic interventions in real- world settings. *School Psychology Forum, 2*(3), 1-15.

Intervention Contact Log

Staff Member(s) Implementing Intervention: ______________________________

Classroom/Location: ______________ Intervention Description: ______________________

Students in Group: (Note: Supplemental intervention groups generally should be capped at 6-7 students.)

A. ______________ D. ______________ G. ______________

B. ______________ E. ______________ H. ______________

C. ______________ F. ______________ I. ______________

Date: _________ Time Start: ___ : ____ AM Time End: ___ : ____ AM | Students Absent ______________________

To what degree were you able to carry out the intervention as designed? | Comments: ______________________

1 2 3 | 4 5 6 | 7 8 9
Not at all | Somewhat | Fully

Date: _________ Time Start: ___ : ____ AM Time End: ___ : ____ AM | Students Absent: ______________________

To what degree were you able to carry out the intervention as designed? | Comments: ______________________

1 2 3 | 4 5 6 | 7 8 9
Not at all | Somewhat | Fully

Date: _________ Time Start: ___ : ____ AM Time End: ___ : ____ AM | Students Absent: ______________________

To what degree were you able to carry out the intervention as designed? | Comments: ______________________

1 2 3 | 4 5 6 | 7 8 9
Not at all | Somewhat | Fully

Date: _________ Time Start: ___ : ____ AM Time End: ___ : ____ AM | Students Absent: ______________________

To what degree were you able to carry out the intervention as designed? | Comments: ______________________

1 2 3 | 4 5 6 | 7 8 9
Not at all | Somewhat | Fully

Date: _________ Time Start: ___ : ____ AM Time End: ___ : ____ AM | Students Absent: ______________________

To what degree were you able to carry out the intervention as designed? | Comments: ______________________

1 2 3 | 4 5 6 | 7 8 9
Not at all | Somewhat | Fully

Date: _________ Time Start: ___ : ____ AM Time End: ___ : ____ AM | Students Absent: ______________________

To what degree were you able to carry out the intervention as designed? | Comments: ______________________

1 2 3 | 4 5 6 | 7 8 9
Not at all | Somewhat | Fully

Date: _________ Time Start: ___ : ____ AM Time End: ___ : ____ AM | Students Absent: ______________________

To what degree were you able to carry out the intervention as designed? | Comments: ______________________

1 2 3 | 4 5 6 | 7 8 9
Not at all | Somewhat | Fully

Selecting Methods to Track Intervention Integrity

Student Name: _____ Date: _____

Directions: Schools can use three general sources of data to obtain direct or indirect information about intervention integrity: (1) work products and records generated during the intervention, (2) teacher self-reports and self-ratings, and (3) direct classroom observation of the intervention as it is being carried out. Use this form to select an efficient combination of methods to measure the overall integrity with which an intervention is being implemented.

Work products and records generated during the intervention. Student work samples and other records such as intervention contact logs generated naturally as part of the intervention can be collected to give some indication of intervention integrity (Gansle & Noell, 2007). What work products or other intervention records can be collected to help to track the integrity of the intervention?

Type of Work Product/ Other Intervention Documentation	Person(s) Responsible	Frequency of Data Collection
_____	_____	_____
_____	_____	_____
_____	_____	_____

Teacher self-reports and self-ratings. The teacher or other educators responsible for the intervention can periodically complete formal or informal self-ratings to provide information whether the intervention is being carried out with integrity (Gansle & Noell, 2007).. Teacher self-ratings can be done a variety of ways. At the end of each intervention session, for example, the instructor may complete a brief rating scale (e.g., 0 = intervention did not occur; 4 = intervention was carried out completely and correctly). Or the teacher may periodically be emailed a short, open-ended intervention integrity questionnaire. What method(s) of teacher self-reports/self-ratings will be used to track the integrity of this intervention?

Type of Teacher Self-Report or Self-Rating	Person(s) Responsible	Frequency of Data Collection
_____	_____	_____
_____	_____	_____
_____	_____	_____

Direct observation of the intervention steps. The intervention is divided into a series of discrete steps to create an observation checklist. An observer then visits the classroom with checklist in hand to watch the intervention being implemented and to note whether each step of the intervention is completed correctly (Roach & Elliott, 2008). The direct observation of intervention integrity yields a single figure: 'percentage of intervention steps correctly completed'. To compute this figure, the observer (1) adds up the number of intervention steps correctly carried out during the observation, (2) divides that sum by the total number of steps in the intervention, and (3) multiplies the quotient by 100 to calculate the percentage of steps in the intervention that were done in an acceptable manner.

Who will be responsible for creating an intervention-integrity checklist containing the essential steps of the intervention?	Who will use the intervention-integrity checklist to conduct observations of the intervention?	How often or on what dates will classroom observations of the intervention be conducted?
_____	_____	_____

Gansle, K. A., & Noell, G. H. (2007). The fundamental role of intervention implementation in assessing response to intervention. In S. R. Jimerson, M. K. Burns, & A. M. VanDerHeyden (Eds.), *Response to intervention: The science and practice of assessment and intervention* (pp. 244-251). New York: Springer Publishing.

Roach, A. T., & Elliott, S. N. (2008). Best practices in facilitating and evaluating intervention integrity. In A. Thomas & J. Grimes (Eds.), *Best practices in school psychology V* (pp.195-208).

Intervention & Related RTI Terms: Definitions

Educators who serve as interventionists should be able to define and distinguish among the terms *core instruction*, *intervention*, *instructional adjustment*, and *modification*. (In particular, interventionists should avoid using modifications as part of an RTI plan for a general education student, as they can be predicted to undermine the student's academic performance.) Here are definitions for these key terms.

- Core Instruction. Those instructional strategies that are used routinely with all students in a general-education setting are considered 'core instruction'. High-quality instruction is essential and forms the foundation of RTI academic support. NOTE: While it is important to verify that a struggling student receives good core instructional practices, those routine practices do not 'count' as individual student interventions.

- Intervention. An academic *intervention* is a strategy used to teach a new skill, build fluency in a skill, or encourage a child to apply an existing skill to new situations or settings. An intervention can be thought of as "a set of actions that, when taken, have demonstrated ability to change a fixed educational trajectory" (Methe & Riley-Tillman, 2008; p. 37). As an example of an academic intervention, the teacher may select question generation (Davey & McBride,1986.; Rosenshine, Meister & Chapman, 1996), a strategy in which the student is taught to locate or generate main idea sentences for each paragraph in a passage and record those 'gist' sentences for later review.

- Instructional Adjustment (Accommodation). An *instructional adjustment* (also known as an 'accommodation') is intended to help the student to fully access and participate in the general-education curriculum without changing the instructional content and without reducing the student's rate of learning (Skinner, Pappas & Davis, 2005). An instructional adjustment is intended to remove barriers to learning while still expecting that students will master the same instructional content as their typical peers. An instructional adjustment for students who are slow readers, for example, may include having them supplement their silent reading of a novel by listening to the book on tape. An instructional adjustment for unmotivated students may include breaking larger assignments into smaller 'chunks' and providing students with performance feedback and praise for each completed 'chunk' of assigned work (Skinner, Pappas & Davis, 2005).

- Modification. A modification changes the expectations of what a student is expected to know or do—typically by lowering the academic standards against which the student is to be evaluated. Examples of modifications are giving a student five math computation problems for practice instead of the 20 problems assigned to the rest of the class or letting the student consult course notes during a test when peers are not permitted to do so. Instructional modifications are essential elements on the Individualized Education Plans (IEPs) or Section 504 Plans of many students with special needs. Modifications are generally not included on a general-education student's RTI intervention plan, however, because the assumption is that the student can be successful in the curriculum with appropriate interventions and instructional adjustments alone. In fact, modifying the work of struggling general education students is likely to have a negative effect that works *against* the goals of RTI. Reducing academic expectations will result in these students falling further behind rather than closing the performance gap with peers

References

Davey, B., & McBride, S. (1986). Effects of question-generation training on reading comprehension. *Journal of Educational Psychology, 78,* 256-262.

Methe, S. A., & Riley-Tillman, T. C. (2008). An informed approach to selecting and designing early mathematics interventions. School Psychology Forum: Research into Practice, 2, 29-41.

Rosenshine, B., Meister, C., & Chapman, S. (1996). Teaching students to generate questions: A review of the intervention studies. *Review of Educational Research, 66*, 181-221.

Skinner, C. H., Pappas, D. N., & Davis, K. A. (2005). Enhancing academic engagement: Providing opportunities for responding and influencing students to choose to respond. Psychology in the Schools, 42, 389-403.

Using Accommodations With General-Education Students: Teacher Guidelines

Classrooms in most schools look pretty much alike, with students sitting at rows of desks attending (more or less) to teacher instruction. But a teacher facing any class knows that behind that group of attentive student faces lies a kaleidoscope of differences in academic, social, self-management, and language skills. For example, recent national test results indicate that well over half of elementary and middle-school students have not yet attained proficiency in mathematics (NAEP, 20011a) or reading (NAEP 2011b). Furthermore, 1 in 10 students now attending American schools is an English Language Learner (Institute of Education Sciences, 2012) who must grapple with the complexities of language acquisition in addition to the demands of academic coursework.

Teachers can increase the chances for academic success by weaving into their instructional routine an appropriate array of classwide curricular accommodations made available to any general-education student who needs them (Kern, Bambara, & Fogt, 2002). However, teachers also know that they must strike an appropriate balance: while accommodations have the potential to help struggling learners to more fully engage in demanding academics, they should not compromise learning by holding a general-education student who accesses them to a lesser performance standard than the rest of the class. After all, students with academic deficits must actually *accelerate* learning to close the skill-gap with peers, so allowing them to do less is simply not a realistic option.

Read on for guidelines on how to select classroom accommodations to promote school success, verify whether a student actually *needs* a particular accommodation, and judge when accommodations should be used in instruction even if not allowed on state tests.

Identifying Appropriate Accommodations: Access vs. Target Skills. As an aid in determining whether a particular accommodation both supports individual student differences and sustains a demanding academic environment, teachers should distinguish between *target* and *access* skills (Tindal, Daesik, & Ketterlin, 2008). *Target skills* are those academic skills that the teacher is actively trying to assess or to teach. Target skills are therefore 'non-negotiable'; the teacher must ensure that these skills are not compromised in the instruction or assessment of any general-education student. For example, a 4th-grade teacher sets as a target skill for his class the development of computational fluency in basic multiplication facts. To work toward this goal, the teacher has his class complete a worksheet of 20 computation problems under timed conditions. This teacher would not allow a typical student who struggles with computation to do fewer than the assigned 20 problems, as this change would undermine the target skill of computational fluency that is the purpose of the assignment.

In contrast*, access skills* are those needed for the student to take part in a class assessment or instructional activity but are not themselves the target of current assessment or instruction. Access skills, therefore, *can* be the focus of accommodations, as altering them may remove a barrier to student participation but will not compromise the academic rigor of classroom activities. For example, a 7th-grade teacher assigns a 5-paragraph essay as an in-class writing assignment. She notes that one student finds the access skill of handwriting to be difficult and aversive, so she instead allows that student the accommodation of writing his essay on a classroom desktop computer. While the access skill (method of text production) is altered, the teacher preserves the integrity of those elements of the assignment that directly address the target skill (i.e., the student must still produce a full 5-paragraph essay).

Matching Accommodations to Students: Look for the 'Differential Boost'. The first principle in using accommodations in general-education classrooms, then, is that they should address access rather than target

academic skills. However, teachers may also wish to identify whether an individual actually benefits from a particular accommodation strategy. A useful tool to investigate this question is the 'differential boost' test (Tindal & Fuchs, 1999). The teacher examines a student's performance both with and without the accommodation and asks these 2 questions: (1) Does the student perform significantly better *with* the accommodation than without?, and (2) Does the accommodation boost that particular student's performance substantially *beyond* what could be expected if it were given to all students in the class? If the answer to both questions is YES, there is clear evidence that this student receives a 'differential boost' from the accommodation and that this benefit can be explained as a unique rather than universal response. With such evidence in hand, the teacher should feel confident that the accommodation is an appropriate match for the student. (Of course, if a teacher observes that most or all of a class seems to benefit from a particular accommodation idea, the best course is probably to revise the assignment or assessment activity to incorporate the accommodation!)

For example, a teacher may routinely allocate 20 minutes for her class to complete an in-class writing assignment and finds that all but one of her students are able to complete the assignment adequately within that time. She therefore allows this one student 10 minutes of additional time for the assignment and discovers that his work is markedly better with this accommodation. The evidence shows that, in contrast to peers, the student gains a clear 'differential boost' from the accommodation of extended time because (1) his writing product is substantially improved when using it, while (2) few if any other students appear to need it.

Classroom Accommodations and State Tests: To Allow or Not to Allow? Teachers may sometimes be reluctant to allow a student to access classroom accommodations if the student cannot use those same accommodations on high-stakes state assessments (TIndal & Fuchs, 1999). This view is understandable; teachers do not want students to become dependent on accommodations only to have those accommodations yanked away at precisely the moment when the student needs them most. While the teacher must be the ultimate judge, however, there are 3 good reasons to consider allowing a general-education student to access accommodations in the classroom that will be off-limits during state testing.

1. *Accommodations can uncover 'academic blockers'.* The teacher who is able to identify which student access skills may require instructional accommodations is also in a good position to provide interventions proactively to strengthen those deficient access skills. For example, an instructor might note that a student does poorly on math word problems because that student has limited reading decoding skills. While the teacher may match the student to a peer who reads the word problems aloud (texts read) as a classroom accommodation, the teacher and school can also focus on improving that student's decoding skills so that she can complete similar math problems independently when taking the next state examinations.

2. *Accommodations can promote content knowledge.* Students who receive in-class accommodations are likely to increase their skills and knowledge in the course or subject content substantially beyond the level to be expected without such supports. It stands to reason that individuals whose academic skills have been strengthened through the right mix of classroom accommodations will come to the state tests with greater mastery of the content on which they are to be tested.

3. *Accommodations can build self-confidence.* When students receive classroom accommodations, they are empowered to better understand their unique pattern of learning strengths and weaknesses and the strategies that work best for them. Self-knowledge can build self-confidence. And not only are such students primed to advocate for their own educational needs; they are also well-placed to develop compensatory strategies to manage difficult, high-stakes academic situations where support is minimal--such as on state tests.

References

Institute of Education Sciences. (2012). *English Language Learners in public schools (indicator 8)*. Washington, DC: National Center for Education Statistics, U.S. Department of Education. Retrieved on January 24, 2013, from http://nces.ed.gov/programs/coe/indicator_ell.asp

Kern, L., Bambara, L., & Fogt, J. (2002). Class-wide curricular modifications to improve the behavior of students with emotional or behavioral disorders. *Behavioral Disorders, 27*, 317-326.

National Assessment of Educational Progress (NAEP). (2011a). *The nation's report card: Mathematics 2011*. Retrieved from http://nces.ed.gov/nationsreportcard/pubs/main2011/2012458.asp

National Assessment of Educational Progress (NAEP). (2011b). *The nation's report card: Reading 2011*. Retrieved from http://nces.ed.gov/nationsreportcard/pubs/main2011/2012457.asp

Tindal, G., Daesik, L., & Ketterlin, L. (2008). *The reliability of teacher decision-making in recommending accommodations for large-scale tests: Technical report # 08-01*. Eugene, OR: Behavioral Research and Teaching, University of Oregon.

Tindal, G., & Fuchs, L. (1999). *A summary of research on test changes: An empirical basis for defining accommodations*. Lexington, KY: Mid-South Regional Resource Center, University of Kentucky. Retrieved on January 25, 2013, from http://www.specialed.us/discoveridea/topdocs/msrrc/Tindal%26Fuchs.PDF

Setting Individual RTI Academic Performance Goals for the *Off-Level* Student Using Research Norms

Students with *significant* academic deficits can present particular challenges as teachers attempt to match them to appropriate RTI supplemental academic interventions. Often, these Tier 2/3 interventions are 'off-level'; that is, they target academic skills that are below the student's grade placement.

It might be a mistake, however, to measure the student using only assessments from the student's grade of record if that student has significant academic delays. The problem with monitoring the progress of an off-level student using only assessments from the current grade level is that these assessments could prove so difficult that they fail to show the true gains that the student is making on the off-level intervention. For students with significant academic delays, then, the school must follow sensible and consistent guidelines for matching those students to appropriate supplemental off-level interventions, for setting performance goals, and for measuring their academic progress that will both benefit the student and accurately reflect actual student growth.

First, it should be acknowledged that goal-setting is an essential part of any student's RTI intervention plan. To set a goal for student academic performance, these elements are needed:

- *The student's baseline academic performance.* Prior to starting the intervention, the teacher calculates baseline performance by assessing the target student several times with the academic measure that will be used to measure that student's progress once the intervention begins.
- *Estimate of 'typical' peer performance.* The teacher has a reliable estimate of expected or typical peer performance on the academic measure that will be used to measure the target student's progress.
- *Estimate of expected weekly progress.* The teacher selects a rate of weekly academic progress that the target student is expected to attain if the intervention is successful.
- *Number of weeks for the intervention trial.* The teacher decides on how many weeks the RTI intervention will last, as the cumulative, final academic goal can be calculated only when the entire timespan of the intervention is known.

The remainder of this article describes how the formulation of academic goals for students who receive 'off-level' supplemental interventions will always contain the four universal goal-setting elements described above—but includes special instructions for estimating typical peer performance and expected weekly progress for this group.

Below is a 6-step process adapted from Shapiro (2008) for finding the optimal 'off-level' grade for monitoring a student with substantial academic deficits, for setting progress-monitoring goals for that student, and for adjusting periodically the student's intervention and monitoring to reflect growth in student skills:

1. Obtain Research-Derived Academic Screening Norms With Percentile Cut-Points. The process of finding a student's appropriate off-level placement in academic intervention begins with the school selecting a set of research-derived academic screening norms. These norms should include values for fall, winter, and spring of each grade and should be broken down into percentile cut-offs (e.g., norms at the 10th percentile, 25th percentile, 50th percentile, etc.). Commercially available screening packages such as AIMSweb (http://www.aimsweb.com) provide such norms. Or schools can go to other sources to obtain research norms with percentile cut-points for

reading fluency (e.g., Tindal, Hasbrouck & Jones, 2005; EasyCBM, 2010) and additional academic areas (e.g., EasyCBM, 2010).

Case Example: Mrs. Chandler is a 4th-grade teacher in a school whose district has adopted AIMSweb literacy screening tools. The district selected AIMSweb in part because the product includes national norms spanning elementary and middle-school grades that are divided into percentile cut-offs at each grade level.

2. Determine Cut-Points on Research Norms That Indicate Optimal Instructional Placement. Research norms with percentile cut-offs are essential for deciding a student's appropriate instructional match for supplemental intervention. When reviewing its research-derived screening norms, the school sets percentile cut-offs that designate appropriate instructional placement and mastery at each grade level. Shapiro (2008) recommends that, when consulting research norms at any grade level:

   - the 25th percentile serve as the cut-point for determining that a student has the *minimum* academic skills needed to experience success in that material. (Please note, though, that norms from other popular academic screening tools –e.g., easyCBM.com—set the 20th percentile as the minimum-skills cut-point.)

   - the 50th percentile should serve as the cut-point for defining that the student has attained 'mastery' on the grade-level academic skill.

   Case Example: Using the AIMSweb norms, Mrs. Chandler's school decides that when assessed on literacy screening tools at any grade level, a student will be considered as falling within the instructional range if he or she performs within the 25th to 49th percentile and as having achieved mastery if he or she performs at or above the 50th percentile.

3. Find the Target Student's Optimal 'Off-Level' Instructional Match Through a 'Survey-Level' Assessment. The school must next find the struggling student's appropriate 'instructional match'—the level of task difficulty that will allow the student to experience sufficient success on off-level interventions while also ensuring a monitoring plan that can accurately track the student's true growth on that intervention. The process used to find the student's instructional match is called a 'survey-level' assessment.

   The school administers to the target student a series of standardized curriculum-based measures (CBMs) in the area of academic concern. These CBMs start at the level of the student's current grade placement and work downward, testing the student at successively earlier grade levels.

   For each grade-level CBM administered, the teacher scores that 'off-level' CBM and compares the student results to research norms.

   - If the student performs *at or above* the 25th percentile with materials drawn from a particular 'off-level' grade, the teacher judges that the student is likely to experience a good match using intervention and assessment materials at this grade level—and the Survey Level Assessment ends here.

   - However, if the student performs *below* the 25th percentile, it is judged that material at that grade level is too challenging for use in monitoring the student's progress on intervention. The teacher instead continues to administer CBMs from successively earlier grade levels, stopping only at the grade-level at which the student performs at or above the 25th percentile according to the research norms.

Case Example: In January, Mrs. Chandler reviews her classwide reading fluency screening results. She notes that a student who has recently transferred to her classroom, Randy, performed at 35 Words Read Correct (WRC) on the 1-minute AIMSweb Grade 4 fluency probes.

Mrs. Chandler consults AIMSweb reading-fluency research norms and finds that a reasonable minimum reading rate for students by winter of grade 4 (25th percentile) is 89 WRC. Because Randy's reading fluency rate is so far below the grade-level norms (a gap of 54 WRC), his teacher decides to conduct a Survey Level Assessment to find the student's optimal grade level placement for supplemental reading instruction.

- *On Grade 3-level probes, Randy attains a median score of 48 WRC. The AIMSweb winter norm (25th percentile) for a 3rd grade student is 69 WRC. The student is still in the 'frustration' range and the Survey Level Assessment continues.*

- *On Grade 2-level probes, Randy attains a median score of 64 WRC. The AIMSweb winter norm (25th percentile) for a 2nd grade student is 53 WRC. The student is now in the 'instructional' range and the Survey Level Assessment ends.*

4. Determine an 'Off-Level' Progress-Monitoring Goal Based on Norms. To set an intervention progress-monitoring goal, the teacher looks up and uses the academic performance norm for the 50th percentile at the student's off-level 'instructional' grade level previously determined through the Survey Level Assessment.

   Case Example: To find the progress-monitoring goal for Randy, his teacher Mrs. Chandler looks up the benchmark Words Read Correct (WRC) for the 50th percentile at Grade 2 on the fall screening norms (Randy's off-level 'instructional' grade level)—which is 79 WRC. This becomes the progress-monitoring goal for the student.

5. Translate the Student's Long-Term Progress-Monitoring Goal into Weekly Increments. The teacher's final task before beginning to monitor the student's progress on intervention is to translate the student's ultimate intervention goal into 'ambitious but realistic' weekly increments. A useful method (Shapiro, 2008) for determining weekly growth rates is to start with research-derived growth norms and to then use a 'multiplier' to make the expected rate of weekly growth more ambitious.

   The teacher first looks up the average rate of weekly student growth supplied in the research norms.

   - If available, a good rule of thumb is to use the growth norms for the 50th percentile at the 'off-level' grade at which the student is receiving intervention and being monitored.

   - If a screening tool's academic-performance norms do not also include growth norms, schools can compute the 'typical' rate of weekly progress for any grade-level by (1) subtracting the fall screening results (50th percentile) for the off-level grade from the spring screening results (50th percentile) and (2) dividing the difference by 32--representing the typical 32 weeks that separate fall and spring screenings in most schools. The resulting quotient represents 'average' expected rate of student progress per instructional week on that academic screening measure at that grade level.

     The teacher then multiplies this grade norm for weekly growth by a multiplier whose value falls between 1.5 and 2.0 (Shapiro, 2008). Because the original weekly growth rate represents only a typical rate of academic

improvement, this multiplier is used to boost the target student's weekly growth estimate to a point at which learning is accelerated and the gap separating that student from peers will likely close if the intervention is successful.

Case Example: Randy, the 4th-grade student, is to be monitored on intervention at grade 2. Mrs. Chandler finds—using AIMSweb norms—that a typical student in Grade 2 (at the 50th percentile) has a rate of improvement of 1.1 Words Read Correct (WRC) per week. Based on her own judgment, Mrs. Chandler selects 1.8 as her multiplier—although any figure between 1.5 and 2.0 would be acceptable. She multiplies the 1.1 WRC figure by 1.8 to obtain an ambitious weekly growth goal for Randy of about 2.0 additional WRCs.

Randy's ultimate 'graduation goal' that would allow him to advance beyond grade 2 as his supplemental intervention level is 79 WRC (the 50th percentile norm for grade 2). During the Survey Level Assessment, Randy was found to read 64 WRC at the 2nd grade level. There is a 15-WRC gap to be closed to get Randy to his goal. At 2 additional WRC per week on intervention, Randy should close the gap within about 8 instructional weeks.

6. Gradually Advance the Student to Higher Grade Levels for Intervention & Progress-Monitoring. The teacher monitors the student's growth in the target academic skill at least once per week (twice per week is ideal). When, according to the research norms for his or her off-level grade, the student's performance exceeds the 50th percentile, the teacher reassesses the student's academic skills at the *next higher grade*, again using the research-based norms. If the student performs at or above the 25th percentile on probes from that next grade level, the teacher can move the student up with confidence and begin to monitor at the higher grade level. The process repeats until the student eventually closes the gap with peers and is being monitored at grade of placement.

   Case Example: His teacher, Ms. Chandler, notes that after 7 weeks of intervention, Randy is now reading 82 Words Read Correct (WRC)—exceeding the 79 WRC for the 50th percentile of students in Grade 2 (winter norms). So Mrs. Chandler assesses Randy on AIMSweb reading fluency probes for Grade 3 and finds that he reads on average 72 WRC —exceeding the 3rd grade 25th percentile cut-off of 69 WRC. Therefore, Randy is advanced to Grade 3 progress-monitoring and his intervention materials are adjusted accordingly.

Recommendations for using this approach: Research norms for student performance and academic growth are the 'gold standard' in off-level goal-setting, as they provide fixed, external standards for proficiency that are not influenced by variable levels of student skill in local classrooms. When setting academic goals for struggling students, schools should use research norms whenever they are available. In particular, research norms should be used for high-stakes RTI cases that may be referred at some point to the Special Education Eligibility Team.

References

EasyCBM: (2010). *Interpreting the EasyCBM progress monitoring test results*. Retrieved February 22, 2011, from http://www.easycbm.com/static/files/pdfs/info/ProgMonScoreInterpretation.pdf

Shapiro, E. S. (2008). Best practices in setting progress-monitoring monitoring goals for academic skill improvement. In A. Thomas & J. Grimes (Eds.), *Best practices in school psychology V* (pp. 141-157). Bethesda, MD: National Association of School Psychologists.

Tindal, G., Hasbrouck, J., & Jones, C. (2005).Oral reading fluency: 90 years of measurement [Technical report #33]. Eugene, OR: University of Oregon. (NOTE: A useful summary of these reading fluency norms can also be downloaded from http://www.gifted.uconn.edu/SEMR/oralreadingfluency%20norms.2005.pdf)

Setting Up and Interpreting Time-Series Charts

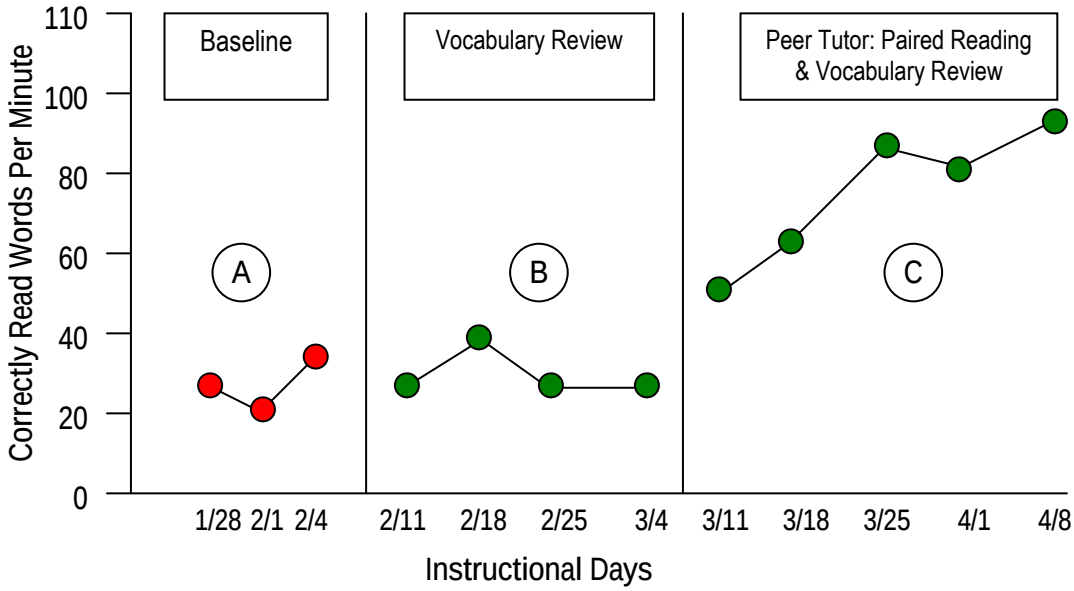
Response to Intervention requires that schools collect data on student progress over time to demonstrate whether an academic or behavioral intervention is working. It is much easier to see the student's overall rate of progress when data are converted to a visual display. The *time-series chart* is the type of visual display most commonly used to graph student progress. This brief tutorial will provide guidelines for setting up a time-series chart and interpreting plotted data (Hayes, 1981; Kazdin,1982).

Components of the time-series chart

Time-series charts are structured in a standardized manner to help viewers to better understand the data that they display. Some of the charting conventions described below (labeling of the chart axes, separation of data phases) are standard elements of time-series charts. Other conventions, such as use of aimlines, are most commonly used when charting Curriculum-Based Measurement data.

- *Labels of Vertical ('Y') and Horizontal ('X') Axes*. The vertical axis of the chart is labeled with the 'behavior' that is being measured. In the chart displayed in Figure 1, the behavior to be plotted is 'Correctly Read Words Per Minute'. The horizontal axis of the chart displays the timespan during which progress-monitoring took place. Our sample chart shows that the student was monitored from the dates of January 28 through April 8.

Figure 1: Sample Time-Series Chart With Curriculum-Based Measurement (CBM) Data



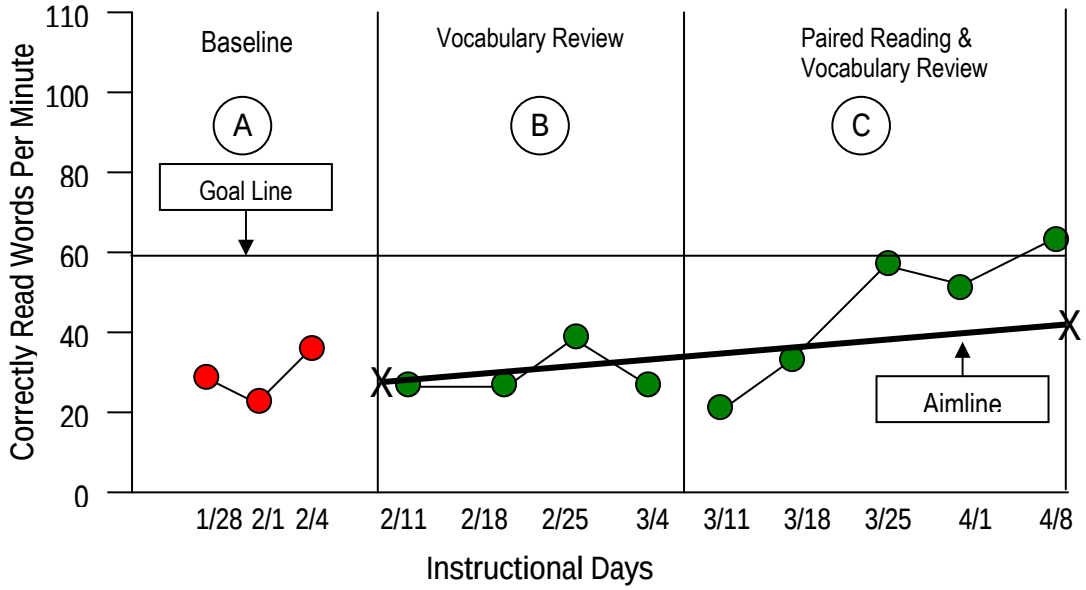
- *Phase Changes*. The chart is divided into *phases*, with each phase representing a time period in which data are collected under similar conditions. Phases are visually separated on the chart with vertical lines. Each phase is also typically labeled to indicate the intervention condition in effect during that phase (e.g., 'Baseline: Teacher whole-group math instruction'). Data collected within a phase are plotted as a series of connected data points. However, there is always a break in the plotted data between phases to indicate that the conditions under which

data were collected differed in each phase. In Figure 1, sections A, B, and C of the chart represent different phases.

- *Baseline Data*. RTI Teams will often collect *baseline* data to determine a student's starting point before an intervention is begun. Baseline data provides a snapshot of the student's level of academic or behavioral functioning before an individualized intervention is put into place. Phase A of the chart in Figure 1 shows an example of baseline data points. It is generally recommended that a minimum of 3-5 data points be collected during the baseline phase. If a visual inspection reveals that the overall trend of the baseline data is relatively flat or moving in the direction opposite that desired by school staff, the RTI Team concludes the baseline phase and implements the intervention. However, if the baseline phase shows a strong *positive* trend (moves strongly in the desired direction), the team should delay putting the intervention in place and continue to monitor student progress, since the instructional or behavioral strategies being used during the baseline phase are clearly benefiting the child.

- *Progress-Monitoring Data*. Once an individualized academic or behavioral intervention has been put into place for a student student, the RTI Team then monitors the intervention frequently (e.g., weekly) to track that student's *response* to the intervention. Sections B and C of the chart in Figure 1 display progress-monitoring data collected during two intervention phases.

Figure 2: CBM Time-Series Chart with Goal Line and Aim Line



- *Plotting Goal Line and Aimline.* When charting student progress, it is helpful to include visual indicators that show the *goal* that the student is striving to reach as well as the *expected rate of progress* that the student is predicted to make.

  The *goal line* is drawn on the chart as a vertical line that represents a successful level of performance. In Figure 2, the goal line for correctly read words is set at 59 words per minute, the typical skill level in the classroom of the student being monitored. The *aimline* is a sloping line that shows the rate at which the student is predicted to make progress if the intervention is successful. The aimline in Figure 2

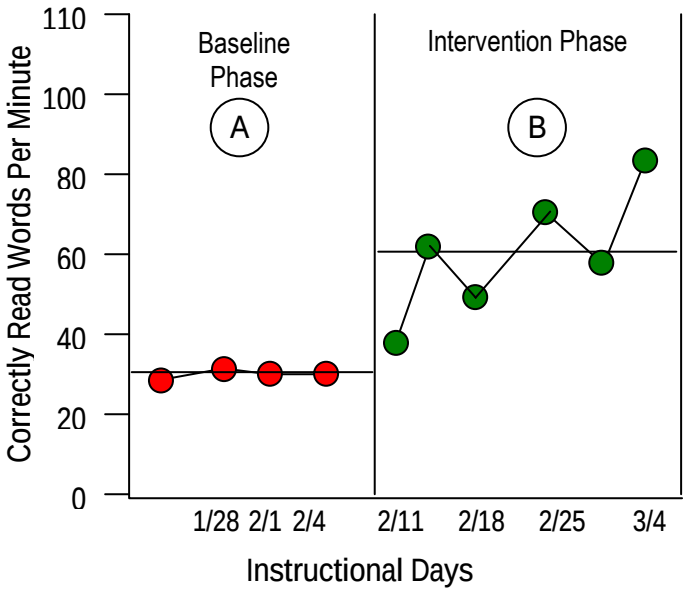
shows an expected increase of about 1.5 words per week in reading fluency. By plotting both goal line and aimline on the progress-monitoring chart, the RTI Team can visually compare the student's actual performance on a given day to his or her expected rate of progress (aimline) and eventual goal for improvement (goal line).

Visual interpretation of time-series data

When data points are plotted on a time-series chart, the observer can use techniques of visual analysis to uncover meaningful patterns in the data. Trend, variability, and level of data points can all yield significant clues to help in data interpretation.

- *Trend.* Trend is the slope of increase or decrease visible in charted data. A strong trend in the desired direction during an intervention phase would indicate that the intervention is having the predicted positive impact. The data series in section B of Figure 3 shows a much stronger upward trend than that in section A.

Figure 3: Level, Trend, and Variability of Data



- *Variability.* The amount of variability, or fluctuation, of data in each phase can have an impact on progress monitoring. When data in a series show little variability, RTI Teams may need to collect only a small amount of data to show a clear trend. When there is considerable variability, though, RTI Teams may be required to collect more data to discern the underlying trend. The data series charted in Phase B of Figure 3 shows much more variability than the series in Phase A.

- *Level.* The level of a data series is the average, or mean, of the data within that series. For example, in a data series with four values (45,58, 62, 47) , the level (mean) is 53. The level can be a useful method for summarizing the average for each data phase, particularly when there is a considerable amount of variability in the data. On a time-series chart, the level of a data series is usually plotted as a horizontal line corresponding to the mean of the phase. In Figure 3, the level of Phase B (60 correctly read words per minute) is considerably greater than that of Phase A (34 correctly read words per minute).

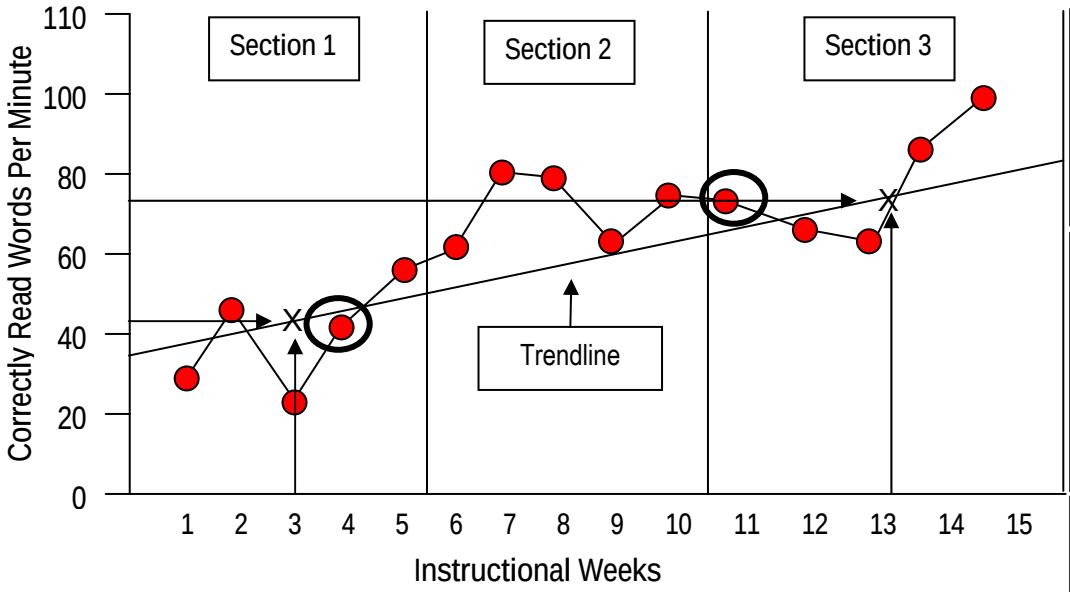
Plotting trendlines to determine the underlying 'trend' of charted data

Data points plotted on a time-series chart often have considerable fluctuation, or variability, making it difficult to 'see' the underlying trend of the data with any precision. Trendlines are straight lines superimposed on charted data to show a simplified 'best estimate' of the student's actual rate of progress. This section presents an easy method for plotting a trendline by hand.

Plotting trendlines with the Tukey method. To plot the trendline using the Tukey method, the observer first counts up the data-points on the graph and draws two vertical lines that divide the data-points evenly into 3 groupings. (If the number of data-points does not exactly divide into 3 parts, the groupings should be approximately equal. For example, if the chart contains 11 data-points, they can be divided into groups of 4, 3, and 4 data-points.)

Next, the observer concentrates on the first and third sections of the graph, ignoring the middle section. In each of the two selected sections, the observer finds the median point on the X (horizontal) and Y (vertical) axes and marks an "X" on the graph at the place where those points intersect. To locate the median time (e.g., instructional week) on the horizontal axis of a section, the observer looks at the span of weeks in which data was collected. For example, if data-points appear for weeks 1- 5 in the first section, the observer considers the middle, or median, point to be week 3.

Figure 5: Plotting a trendline with the Tukey Method



Step 1: Divide the data series into 3 equal sections by drawing 2 vertical lines. (If the points divide unevenly, group them approximately.)

Step 2: In Section 1 and Section 3, find the median data point and median instructional week. In each section, mark the point on the graph where the two values intersect with an 'X'.

Step 3: Draw a line through the two 'X's', extending to the margins of the graph. This represents the trendline, or line of improvement.

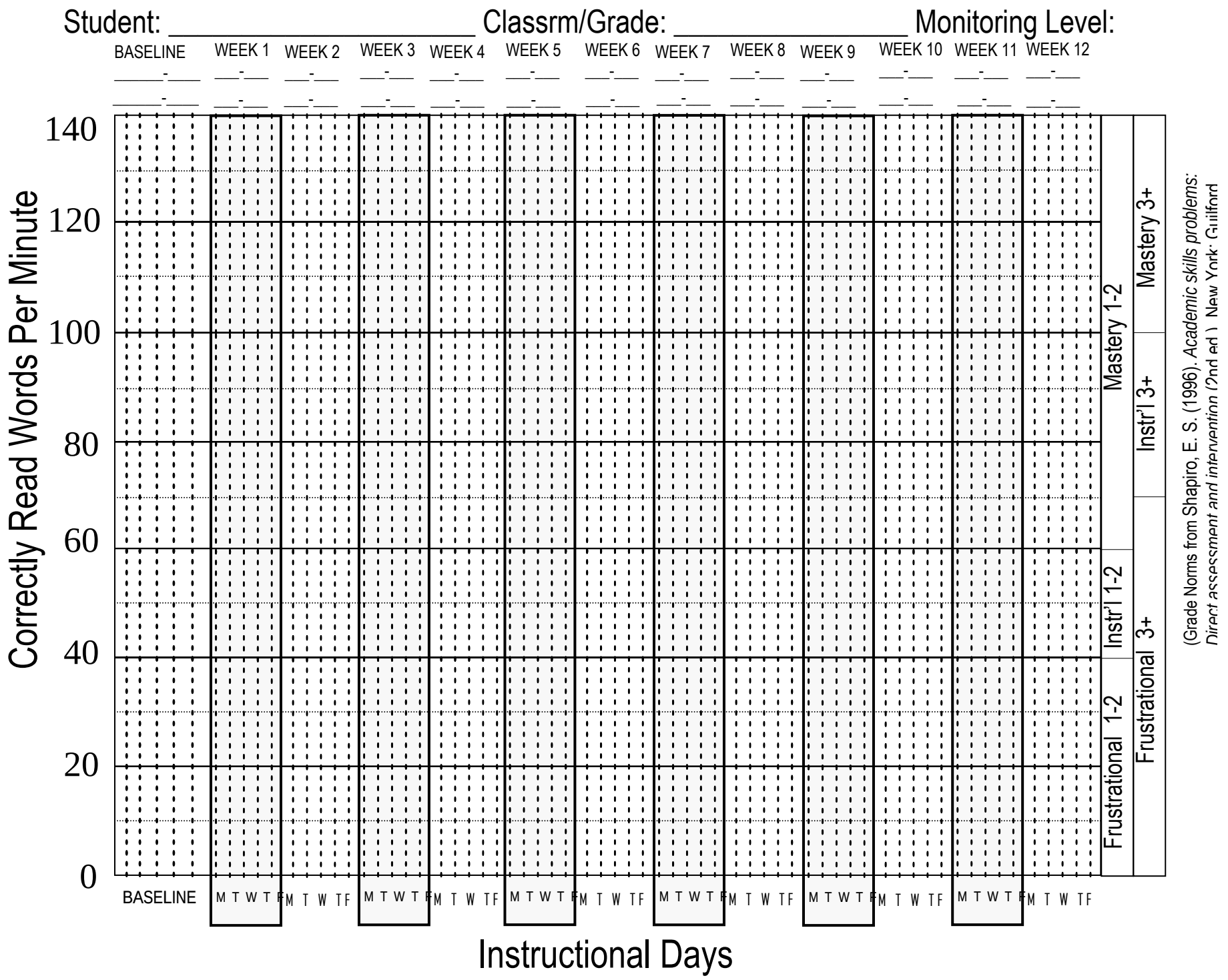
Hutton, J. B., Dubes, R., & Muir, S. (1992). Estimating trend in progress monitoring data: A comparison of simple line-fitting methods. *School Psychology Review, 21,* 300-312.

To locate the median number of observed behaviors on the vertical axis, the observer examines the data-points in the graph-section, selecting the median or middle, value from among the range of points. For example, if data-points for weeks 1- 5 in the first section are 30, 49, 23, 41, and 59, the median (middle) value is 41. When the observer has found and marked the point of intersect of median X and Y values in both the first and third sections, a line is then drawn through the two points, extending from the left to the right margins of the graph. By drawing a line through the 2 X's plotted on the graph, the observer creates a trendline that provides a reasonably accurate visual summary of progress.

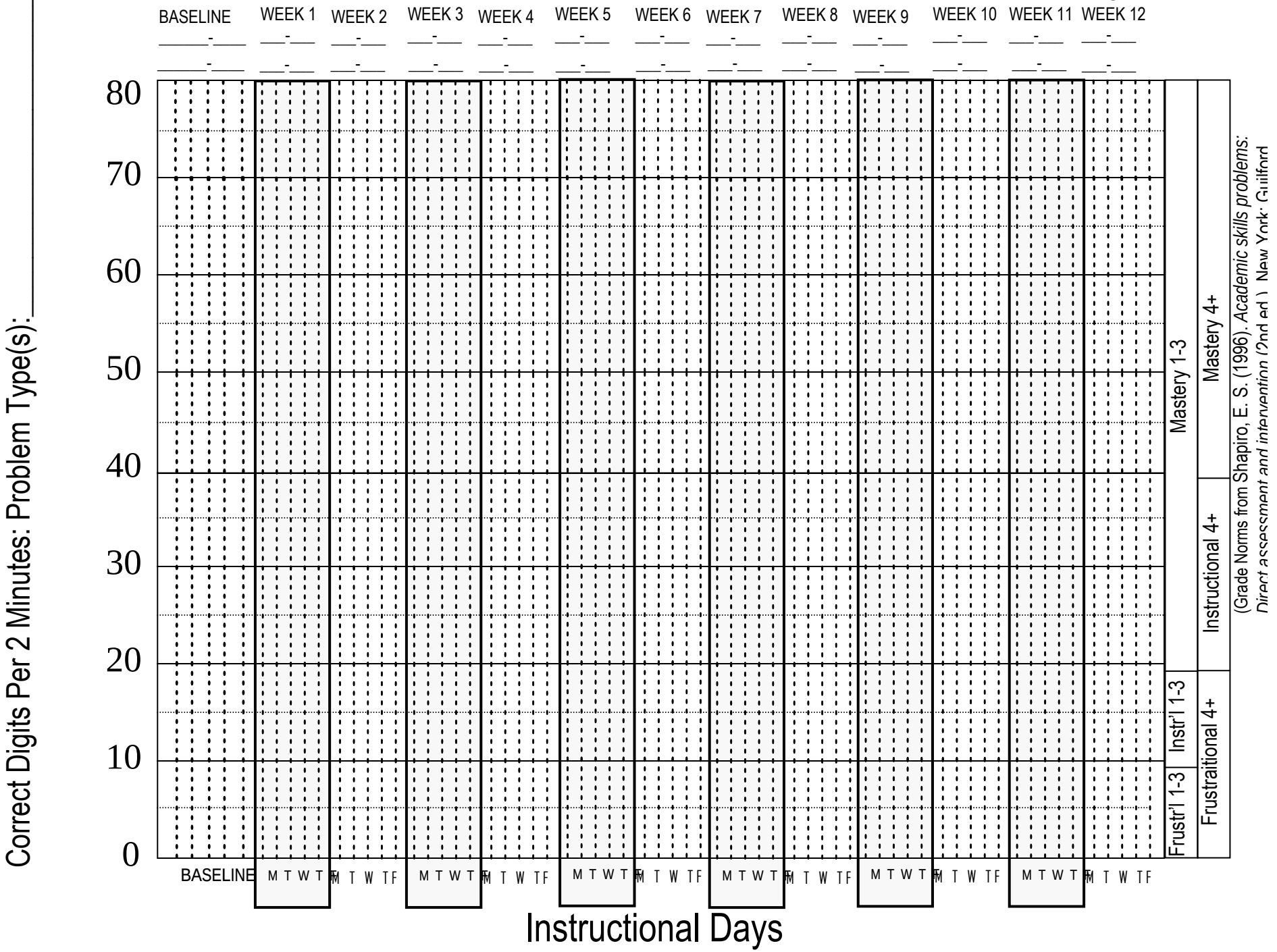
References

Hayes, S.C. (1981). Single case experimental design and empirical clinical practice. Journal of Consulting and Clinical Psychology, 49, 193-211.

Kazdin, A.E. (1982). Single-case research designs: Methods for clinical and applied settings. New York: Oxford Press.

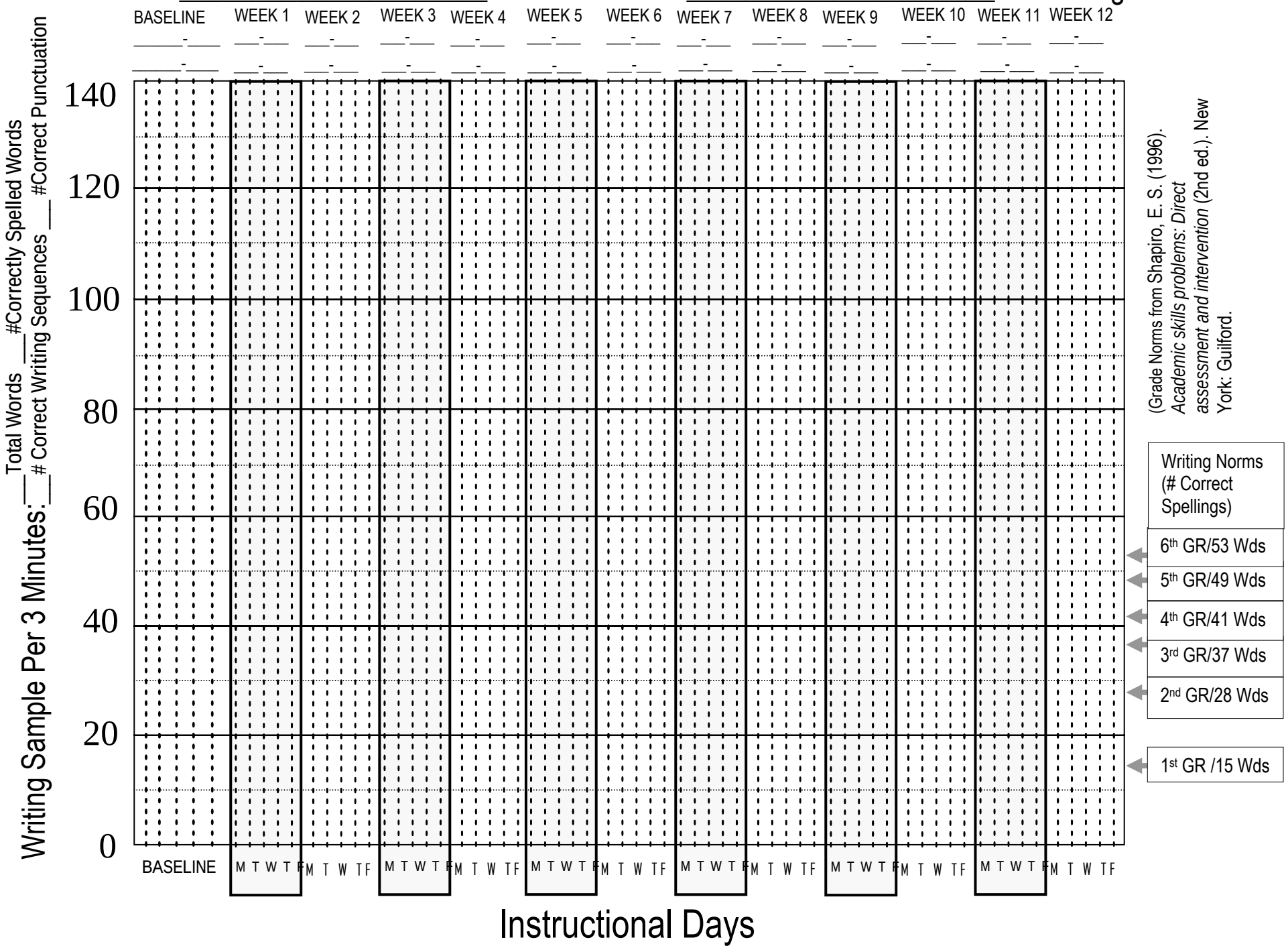

Student: _____ Classrm/Grade: _____ Monitoring Level:
BASELINE
WEEK 1
WEEK 2
WEEK 3
WEEK 4
WEEK 5
WEEK 6
WEEK 7
WEEK 8
WEEK 9
WEEK 10
WEEK 11
WEEK 12
Correctly Read Words Per Minute
140
120
100
80
60
40
20
0
M T W T F
Instructional Days
Frustrational 1-2
Instr'l 1-2
Mastery 1-2
Frustrational 3+
Instr'l 3+
Mastery 3+
(Grade Norms from Shapiro, E. S. (1996). Academic skills problems:
Direct assessment and intervention (2nd ed.). New York: Guilford

Student: _____ Classrm/Grade: _____ Monitoring Level: _____



(Grade Norms from Shapiro, E. S. (1996). *Academic skills problems: Direct assessment and intervention* (2nd ed.). New York: Guilford

Student: _____ Classrm/Grade: _____ Monitoring Level:



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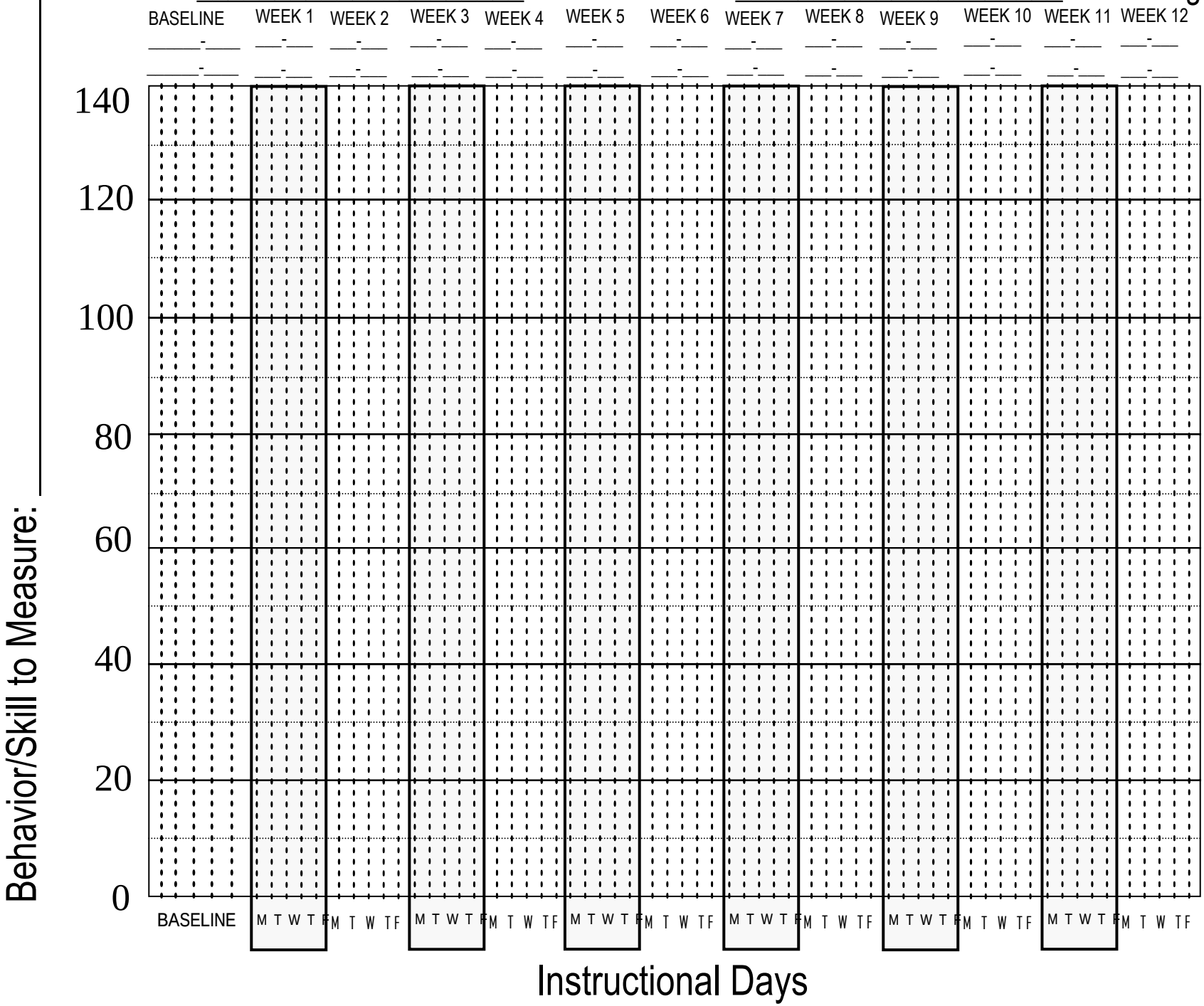

Sample Reading Interventions

This form provides descriptions of the selected intervention, a listing of research articles supporting the intervention ideas, and space for teacher notes.

Academic Intervention Strategies	Research Citations	Teacher Notes
❑ READING FLUENCY: ASSISTED CLOZE. Fluency is the goal of this reading intervention. Sessions last 10-15 minutes. The teacher selects a passage at the student's instructional level. The teacher reads aloud from the passage while the student follows along silently and tracks the place in the text with a finger. Intermittently, the teacher pauses and the student is expected to read aloud the next word in passage. Then the teacher continues reading. The process continues until the entire passage has been read. Then the student is directed to read the text aloud while the teacher follows along silently. Whenever the student commits a reading error or hesitates for 3 seconds or longer (whether during the assisted cloze or independent reading phase), the teacher stops the student, points to and says the error word, has the student read the word aloud correctly, has the student read the surrounding phrase that includes the error word, and then continues the current reading activity. Optionally, the teacher may then have the student read the passage again (repeated reading) up to two more times as the teacher continues to silently monitor and correct any errors or hesitations.	Ellis, W. A. (2009). The impact of C-PEP (choral reading, partner reading, echo reading, and performance of text) on third grade fluency and comprehension development. Unpublished doctoral dissertation, University of Memphis. Homan, S. P., Klesius, J. P, & Hite, C. (1993). Effects of repeated readings and nonrepetive strategies on students' fluency and comprehension. Journal of Educational Research, 87(2), 94-99.	
❑ READING FLUENCY: CHORAL READING. This simple strategy to build reading fluency can be used with individuals and groups of students. Sessions last 10-15 minutes. The teacher selects an engaging text at students' instructional or independent level. During choral reading sessions, the teacher or other fluent reader takes the role of 'lead reader', reading the passage aloud, while students also read aloud. Students are encouraged to read with expression.	Moskal, M. K., & Blachowicz, C. (2006). Partnering for fluency. New York: Guilford Press.	

Academic Intervention Strategies	Research Citations	Teacher Notes
❑ READING FLUENCY: DUET READING. This strategy targets reading fluency. Sessions last for 10-15 minutes. The teacher selects an engaging text at the student's instructional or independent level. During duet reading, the teacher and student alternate reading aloud from the passage one word at a time, while the teacher tracks the place in the passage with an index finger. As the student grows more accomplished, the teacher can change the reading ratio to shift more responsibility to the student: for example, with the teacher reading one word aloud and then the student reading three words aloud in succession. As the student becomes more familiar with duet reading, the teacher can also direct the student to track the place in the text. Whenever the student commits a reading error or hesitates for 3 seconds or longer, the teacher stops the student, points to and says the error word, has the student read the word aloud correctly, has the student read the surrounding phrase that includes the error word, and then continues the reading activity.	Gallagher, T. M. (2008). The effects of a modified duet reading strategy on oral reading fluency. Unpublished doctoral dissertation, University of Wisconsin-Madison.	
❑ READING FLUENCY: ECHO READING. In this strategy to boost student reading fluency, the teacher selects a text at the student's instructional level. The teacher reads aloud a short section (e.g., one-two sentences at a time) while the student follows along silently. The student then reads the same short section aloud--and the read-aloud activity continues, alternating between teacher and student, until the passage has been completed. Whenever the student commits a reading error or hesitates for 3 seconds or longer, the teacher stops the student, points to and says the error word, has the student read the word aloud correctly, has the student read the surrounding phrase that includes the error word, and then continues the reading activity.	Ellis, W. A. (2009). The impact of C-PEP (choral reading, partner reading, echo reading, and performance of text) on third grade fluency and comprehension development. Unpublished doctoral dissertation, University of Memphis. Homan, S. P., Klesius, J. P, & Hite, C. (1993). Effects of repeated readings and nonrepetive strategies on students' fluency and comprehension. Journal of Educational Research, 87(2), 94-99.	

Academic Intervention Strategies	Research Citations	Teacher Notes
❑ READING FLUENCY: LISTENING PASSAGE PREVIEW. This intervention targets student reading fluency in sessions of 10-15 minutes. The teacher selects a passage at the student's instructional level. The student is directed to follow along silently and track the place in the text with a finger while the teacher reads the passage aloud. Then the student is prompted to read the passage aloud as the teacher follows along silently. Whenever the student commits a reading error or hesitates for 3 seconds or longer, the teacher stops the student, points to and says the error word, has the student read the word aloud correctly, has the student read the surrounding phrase that includes the error word, and then directs the student to continue reading. Optionally, the teacher may then have the student read the passage again (repeated reading) up to two more times as the teacher continues to silently monitor and correct any errors or hesitations.	Guzel-Ozmen, R. (2011). Evaluating the effectiveness of combined reading interventions on improving oral reading fluency of students with reading disabilities. Electronic Journal of Research in Educational Psychology, 9(3), 1063 -1086. Hofstadter-Duke, K. L., & Daly, E. J. (2011). Improving oral reading fluency with a peer-mediated intervention. Journal of Applied Behavior Analysis, 44(3), 641-646.	

Academic Intervention Strategies	Research Citations	Teacher Notes
❑ READING FLUENCY: PAIRED READING. This reading fluency intervention prompts the student to read independently with prompt corrective feedback. Each session lasts 10-15 minutes. The teacher selects an engaging passage at the student's instructional level. The student is told that the teacher and student will begin the session reading aloud in unison. The student is also told that, whenever the student chooses, he/she can give a silent signal (e.g., lightly tapping the teacher's wrist); at this signal, the teacher will stop reading aloud and instead follow along silently while the student continues to read aloud. In addition, the student is told that, if he/she hesitates for 3 seconds or longer or misreads a word when reading aloud independently, the teacher will correct the student and then resume reading in unison. The session then begins with teacher and student reading aloud together. Whenever the student commits a reading error or hesitates for 3 seconds or longer (during either unison or independent reading), the teacher stops the student, points to and says the error word, has the student read the word aloud correctly, has the student read the surrounding phrase that includes the error word, and resumes reading in unison. The teacher also praises the student for using the silent signal to read aloud independently and occasionally praises other aspects of the student's reading performance or effort.	Fiala, C. L., & Sheridan, S. M. (2003). Parent involvement and reading: Using curriculum-based measurement to assess the effects of paired reading. Psychology in the Schools, 40(6), 613-626.	

Academic Intervention Strategies	Research Citations	Teacher Notes
❑ READING FLUENCY: REPEATED READING. During 15-20 minute sessions, the student practices difficult words in isolation, reads the same passage several times to boost fluency, and tries to beat a previous fluency score. (1) PREPARATION: Before each session, the teacher selects a text within the student's instructional range long enough occupy the student for more than a minute of reading aloud and makes teacher and student copies. The teacher locates five challenge words in the passage to practice. (2) GOAL-SETTING: The teacher shows the student the performance graph with his/her most recent repeated-reading score and encourages the student to beat that score; (3) PREVIEW CHALLENGING WORDS: The teacher introduces each of the passage challenge words: "This word is ___. What is this word?"; (4) INITIAL READ: The student is directed to read the passage aloud, to do his/her best reading, to start at the beginning of the passage [which the teacher points out] and to read until told to stop. Also, the student is told that--if stuck on a word--the teacher will supply it. While the student reads aloud, the teacher marks reading errors. At the end of one minute, the teacher says "Stop", marks the student's end-point in the text with a bracket, totals the number of words correctly read, plots that score on the student graph, and labels that graph data-point "1st reading". (5) FEEDBACK AND ERROR CORRECTION: The teacher shows the student his/her graphed performance. The teacher then reviews student errors. Pointing to each error word, the teacher says, "This word is ___. What is this word?" and has the student repeat the correct word three times before moving to the next. (6) MODELING: The teacher directs the student to read aloud in unison with the teacher while using a finger to track the place in the text. The teacher takes the lead, reading the entire passage aloud at a pace slightly faster than that of the student. (6) REPEAT STUDENT READS. The teacher has the student repeat steps 4 and 5 twice more, until the student has read the passage independently at least 3 times. If the student's fluency score on the final read exceeds that of the previous session, the teacher provides praise and perhaps incentives (e.g., sticker, points toward rewards).	Begeny, J C., Krouse, H. E., Ross, S. G., & Mitchell, R. C. (2009). Increasing elementary-aged students' reading fluency with small-group interventions: A comparison of repeated reading, listening passage preview, and listening only strategies. Journal of Behavioral Education, 18, 211-228. Lo, Y., Cooke, N. L. & Starling, A. L. P. (2011). Using a repeated reading program to improve generalization of oral reading fluency. Education and Treatment of Children, 34(1), 115-140.	

Academic Intervention Strategies	Research Citations	Teacher Notes
❑ READING COMPREHENSION: ACTIVATE PRIOR KNOWLEDGE AND DEVELOP QUESTIONS. In this two-part strategy, students first engage in an activity to activate their prior knowledge of a topic, then preview an informational passage on the same topic to generate questions. ACTIVATING PRIOR KNOWLEDGE: The teacher prepares a short series (e.g., 3-5) of general questions or prompts about the topic to be covered in the informational passage assigned for the day's reading (e.g., "Today we are going to read about animals that live in and around the seashore. Describe animals that live around a beach."). Students are given a brief period (10-20 minutes) to write answers to these general questions based on their prior knowledge of, and experience with, the topic. DEVELOPING QUESTIONS: Students are next given a short amount of time (e.g. 3-5 minutes) to preview the informational passage assigned for that day's reading and glance over titles, figures, pictures, graphs, and other text structures appearing in the selection. Students then put the text aside and are told to write questions about the topic that they hope to have answered when they read the text. The teacher can collect these prior activation/question generation sheets as evidence of student use of this strategy.	Taboada, A., & Guthrie, J. T. (2006). Contributions of student questioning and prior knowledge to construction of knowledge from reading information text. Journal of Literacy Research, 38(1), 1-35.	
❑ READING COMPREHENSION: CLASSWIDE INSTRUCTION: DEVELOP A BANK OF MULTIPLE PASSAGES FOR CHALLENGING CONCEPTS. Having several passages of differing reading levels can be a useful way to help more students grasp challenging content. The teacher notes which course concepts, cognitive strategies, or other information will likely present the greatest challenge to students. For these 'challenge' topics, the teacher selects alternative readings that present the same general information and review the same key vocabulary as the course text but that are more accessible to struggling readers (e.g., with selections written at an easier reading level or that use graphics to visually illustrate concepts). These alternative selections are organized into a bank. Students are encouraged to engage in wide reading by choosing selections from the bank as a means to better understand difficult material.	Kamil, M. L., Borman, G. D., Dole, J., Kral, C. C., Salinger, T., & Torgesen, J. (2008). Improving adolescent literacy: Effective classroom and intervention practices: A practice guide (NCEE #2008-4027). Washington, DC: National Center for Education Evaluation and Regional Assistance, Institute of Education Sciences, U.S. Department of Education. Retrieved from http://ies.ed.gov/ncee/wwc	

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❑ READING COMPREHENSION: CLASSWIDE INSTRUCTION: PROVIDE MAIN-IDEA PRACTICE THROUGH PARTNER RETELL. This brief paired activity can be during lectures to facilitate promote students' ability to summarize passage main ideas. Students are paired off in class and are assigned a short information passage, which either one student reads aloud to the other or is read silently by each student. Next, one student is assigned the role of 'reteller' and the other appointed as 'listener'. During a 1-2 minute discussion period, the reteller recounts the main idea to the listener, who can comment or ask questions. The teacher then pulls the class together and, with student input, summarizes the passage main idea and writes it on the board.. Then the student pairs resume their work, with the reteller locating two key details from the reading that support the main idea and sharing these with the listener. At the end of the activity, the teacher does a spot check -- randomly calling on one or more students in the listener role and asking them to recap what information was shared by the reteller.	Carnine, L., & Carnine, D. (2004). The interaction of reading skills and science content knowledge when teaching struggling secondary students. Reading & Writing Quarterly, 20, 203-218.	
❑ READING COMPREHENSION: LINK PRONOUNS TO REFERENTS. The student reinforces understanding of abstract text by replacing pronouns with their referent nouns during independent reading. (1) PREPARING THE TEXT. On a photocopy of the text, the student circles each pronoun, identifies that pronoun's referent (i.e., the noun that it refers to), and writes next to the pronoun the name of its referent. For example, the student may add the referent to a pronoun in this sentence from a biology text: "The Cambrian Period is the first geological age that has large numbers of multi-celled organisms associated with it. [Cambrian Period]". (2) WHEN READING, SUBSTUTE REFERENTS FOR PRONOUNS. In each subsequent reading of the text, the student substitutes the referent for each pronoun.	Hedin, L. R., & Conderman, G. (2010). Teaching students to comprehend informational text through rereading. The Reading Teacher, 63(7), 556–565.	

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❑ READING COMPREHENSION: QUESTION GENERATION. This strategy incorporates paragraph main ideas and note-cards to promote retention of textual information: (1) LOCATE MAIN IDEAs. For each paragraph in an assigned reading, the student either (a) highlights the main idea sentence or (b) highlights key details and uses them to write a 'gist' sentence. (2) WRITE MAIN IDEAS ON NOTE-CARDS. The student then writes the main idea of that paragraph on an index card. Cards are sequentially numbered to correspond with paragraphs in the passage. (3) GENERATE REVIEW QUESTIONS. On the other side of the card, the student writes a question whose answer is that paragraph's main idea sentence. This stack of 'main idea' cards becomes a useful tool to review assigned readings.	Davey, B., & McBride, S. (1986). Effects of question-generation training on reading comprehension. Journal of Educational Psychology, 78, 256-262. Rosenshine, B., Meister, C., & Chapman, S. (1996). Teaching students to generate questions: A review of the intervention studies. Review of Educational Research, 66, 181-221.	
❑ READING COMPREHENSION: READING ACTIVELY THROUGH TEXT ANNOTATION. Students are likely to increase their retention of information when they interact actively with their reading by jotting comments in the margin of the text. Using photocopies, the student is taught to engage in an ongoing 'conversation' with the writer by recording a running series of brief comments in the margins of the text. The student may write annotations to record opinions about points raised by the writer, questions triggered by the reading, or unknown vocabulary words. The teacher can set specific student annotation goals (e.g., directing the student to complete and turn in a reading with a minimum of six annotations in the margins).	Harris, J. (1990). Text annotation and underlining as metacognitive strategies to improve comprehension and retention of expository text. Paper presented at the Annual Meeting of the National Reading Conference (Miami). Sarkisian V., Toscano, M., Tomkins-Tinch, K., & Casey, K. (2003). Reading strategies and critical thinking. Retrieved from http://www.academic.marist.edu/alcuin/ssk/stratthink.html	

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❑ READING COMPREHENSION: READING-REFLECTION PAUSES: This strategy is useful both for students who need to monitor their understanding as well as those who benefit from brief breaks when engaging in intensive reading as a means to build up endurance as attentive readers. The student decides on a reading interval (e.g., every four sentences; every 3 minutes; at the end of each paragraph). At the end of each interval, the student pauses briefly to recall the main points of the reading. If the student has questions or is uncertain about the content, the student rereads part or all of the section just read.	Hedin, L. R., & Conderman, G. (2010). Teaching students to comprehend informational text through rereading. The Reading Teacher, 63(7), 556–565.	
❑ READING COMPREHENSION: RECIPROCAL TEACHING. This cooperative-learning activity builds independent reading-comprehension skills while motivating students through regular (e.g., daily) peer interactions. Students meet in pairs, with reciprocal teaching sessions lasting 30-40 minutes. In advance of each session, students are given a challenging passage. Alternating roles at each session, one of the students assumes the 'teacher' role, taking the lead in guiding discussion through these six steps of the reciprocal tutoring model: The students (1) look over the passage and predict what it will cover; (2) discuss what they currently know ('prior knowledge') about the passage topic; (3) review the passage for words or phrases that are unclear and attempt to clarify their meaning; (4) review each paragraph in the passage and highlight its main idea; (5) review each paragraph again to summarize (either orally or in writing) its main idea and important details; and (6) develop questions about the passage and answer those questions from the text or their own knowledge and experience. Students practice these steps under teacher guidance until fluent. They also have the reciprocal teaching steps posted to refer to as needed.	Klingner, J. K., & Vaughn, S. (1996). Reciprocal teaching of reading comprehension strategies for students with learning disabilities who use English as a second language. The Elementary School Journal, 96, 275-293.	

Academic Intervention Strategies	Research Citations	Teacher Notes
❑ READING COMPREHENSION: RESTRUCTURING PARAGRAPHS TO PUT MAIN IDEA FIRST. This intervention draws attention to the main-idea sentence during independent reading. The student highlights or creates a main idea sentence for each paragraph in the assigned reading. When rereading each paragraph of the selection, the student (1) reads the main idea sentence or student-generated 'gist' sentence first (irrespective of where that sentence actually falls in the paragraph); (2) reads the remainder of the paragraph, and (3) reflects on how the main idea relates to the paragraph content.	Hedin, L. R., & Conderman, G. (2010). Teaching students to comprehend informational text through rereading. The Reading Teacher, 63(7), 556–565.	
❑ READING COMPREHENSION: RETAIN STORY DETAILS WITH TEXT PREVIEWING. To help students to better comprehend and retain details from an assigned story, the teacher prepares a written text preview script to be shared with students before they read the story. The strategy can be used with an individual or group of students. SCRIPT: The script opens with several statements and questions chosen to interest students in a discussion about the story topic or theme (e.g., "Today we are going to read about a boy who gets lost in the wilderness and must find his way home. Has anyone in this class ever been lost?"). The preview next includes a plot-summary up to the story climax--but does not give away the ending. As part of the summary, the preview describes the setting of the narrative and introduces the main characters. The preview also selects three to four difficult words appearing in the story and defines them. PRESENTATION: The teacher uses the preview script as a framework for introducing the story. Optionally, students also receive a handout listing main characters and their descriptions and the difficult vocabulary terms and definitions.	Burns, M. K., Hodgson, J., Parker, D. C., & Fremont, K. (2011). Comparison of the effectiveness and efficiency of text previewing and preteaching keywords as small-group reading comprehension strategies with middle-school students. Literacy Research and Instruction, 50, 241-252. Graves, M. F., Cooke, C. L., & Laberge, M. J. (1983). Effects of previewing difficult short stories on low ability junior high school students' comprehension, recall, and attitudes. Reading Research Quarterly,18(3), 262-276.	

Academic Intervention Strategies	Research Citations	Teacher Notes
❑ READING COMPREHENSION: RETAIN TEXT INFORMATION WITH PARAPHRASING (RAP). Students who fail to retain important details from their reading can be taught a self-directed paraphrasing strategy. The student is trained to use a 3-step cognitive strategy when reading each paragraph of an information- text passage: (1) READ the paragraph; (2) ASK oneself what the main idea of the paragraph is and what two key details support that main idea; (3) PARAPHRASE the main idea and two supporting details into one's own words. This 3-step strategy is easily memorized using the acronym RAP (read-ask-paraphrase). OPTIONAL BUT RECOMMENDED: Create an organizer sheet with spaces for the student to record the main idea and supporting details of multiple paragraphs to be used with the RAP strategy. RAP organizer forms can provide structure to the student and yield work products that the teacher can collect to verify that the student is using the strategy.	Hagaman, J. L., Casey, K. J., & Reid, R. (2010). The effects of the paraphrasing strategy on the reading comprehension of young students. Remedial and Special Education, 33, 110-123. Klingner, J. K., & Vaughn, S. (1996). Reciprocal teaching of reading comprehension strategies for students with learning disabilities who use English as a second language. The Elementary School Journal, 96, 275-293.	

Academic Intervention Strategies	Research Citations	Teacher Notes
❑ READING COMPREHENSION: RETAIN TEXT INFORMATION WITH SELF-QUESTIONING FROM TEXT TITLES. To better retain information from textbooks and other informational text, the student is taught to use a four-step self-questioning strategy and related 'fix-up' skills during independent reading. SELF-QUESTIONING STRATEGY: The teacher creates a strategy sheet as a student resource for this intervention. The sheet contains several simple steps in checklist format that the student applies to independent reading of an informational passage: (1) Preview the titles and sub-titles in the passage; (2) Rewrite each title as a question: e.g., The title "Causes of the American Civil War" might convert to the question "What were the main causes of the Civil War?"; (3) Read the passage; (4) Review the self-generated questions and--based on the reading--attempt to answer them. FIX-UP STRATEGIES: The strategy sheet also directs the student to apply simple fix-up strategies if unable to answer a self-generated question: (1) Re-read that section of the passage; (2) Verify that you know all vocabulary terms in the passage--and look up the meaning of any unknown words; (3) examine the passage for other 'text structures' such as tables, graphs, maps, or captioned pictures that may help to answer the question; (4) write down remaining unanswered questions to review with the teacher or tutor. To monitor use of this strategy, the teacher may direct the student to write down self-generated questions from reading assignments for the teacher's review.	Berkeley, S., Marshak, L., Mastropieri, M. A., & Scruggs, T. E. (2011). Improving student comprehension of social studies text: A self-questioning strategy for inclusive middle school classes. Remedial and Special Education 32, 105-113.	
❑ READING COMPREHENSION: SUMMARIZE READINGS. The act of summarizing longer readings can promote understanding and retention of content while the summarized text itself can be a useful study tool. The student is taught to condense assigned readings into condensed summaries--consisting of main ideas and essential details and stripped of superfluous content.	Boardman, A. G., Roberts, G., Vaughn, S., Wexler, J., Murray, C. S., & Kosanovich, M. (2008). Effective instruction for adolescent struggling readers: A practice brief. Portsmouth, NH: RMC Research Corporation, Center on Instruction.	

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❑ READING COMPREHENSION: TEXT ENHANCEMENTS. Text enhancements can be used to tag important vocabulary terms, key ideas, or other reading content. If working with photocopied material, the student can use a highlighter to note key ideas or vocabulary. Another enhancement strategy is the 'lasso and rope' technique—using a pen or pencil to circle a vocabulary term and then drawing a line that connects that term to its underlined definition. If working from a textbook, the student can cut sticky notes into strips. These strips can be inserted in the book as pointers to text of interest. They can also be used as temporary labels—e.g., for writing a vocabulary term and its definition.	Hedin, L. R., & Conderman, G. (2010). Teaching students to comprehend informational text through rereading. The Reading Teacher, 63(7), 556–565.	
❑ WRITING: PRODUCTION: DRAWING AS A PRE-WRITING ACTIVITY. The teacher presents the student with a motivating writing topic and allocates a sufficient time (e.g., 30 minutes) for the student to produce a composition. During the writing period, the student is directed to first draw a picture about the topic and then to write a composition on the same topic.	Norris, E., Mokhtari, K., & Reichard, C. (1998). Children's use of drawing as a pre-writing strategy. Journal of Research in Reading, 21(1), 69-74.	
❑ WRITING: PRODUCTION: REGULAR WRITING WITH PROMPTS. The student engages in 20-minute writing sessions. Before each writing session the student briefly reviews the following prompts for writing mechanics--with an instructor or in peer pairs or groups--and has them available as a written checklist: (1) Use complete sentences. Each sentence should 'sound complete' and contain at least one subject and one verb. (2) Indent and punctuate. The first sentence of each new paragraph is indented. Each sentence in the passage has appropriate end-punctuation (period, question mark, exclamation point). Quotation marks are used to denote the exact words spoken by someone. (3) Capitalize. The initial letters of these words are capitalized: the first word in a sentence; the names of proper nouns. At the end of the session, the student uses the mechanics checklist to revise the writing sample before turning it in.	Harriman, N. E., & Gajar, A.H. (1986). The effects of repeated writing and repeated revision strategies on composing fluency of learning disabled adolescents (Report No. ED290312). Educational Resources Information Center.	

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❑ WRITING: PRODUCTION: TIME-DRILLS AND GRAPHING. This intervention uses 5-minute writing drills with visual feedback (graphing) to improve the writing fluency of groups or the entire class. WRITING DRILL: The session opens with quick brainstorming or topic discussion to prime student writers. Then the teacher sets a timer and tells the students to write for five minutes. The teacher announces when there is one minute remaining in the session and tells students to stop writing when the timer sounds. The following rules are publicly posted and reviewed with students before writing sessions: (1) Write quickly in legible handwriting;(2) Cross out mistakes and continue writing;(3) Write for the full 5 minutes; (4) Refrain from talking or other distracting behavior; and(5) Do not request bathroom or drink breaks during the drill. SCORING: Students count up the number of words written and exchange their writing samples with a neighbor, who re-counts total words written to ensure accuracy. (The teacher resolves any scoring disagreements between students.) GRAPHING AND INCENTIVES: Each student updates a paper or computerized bar graph to include the current day's writing total and cumulative weekly total. Students receive recognition (e.g., praise) for improved daily scores and earn incentives (e.g., 10 minutes free time) for improved weekly scores. The teacher also collects writing scores from all students on a daily basis, with rotating students updating a daily class chart. The teacher acknowledges daily class improvement and provides an incentive for weekly class improvements (e.g., special class game played at the end of the week).	Kasper-Ferguson, S., & Moxley, R. A. (2002). Developing a writing package with student graphing of fluency. Education and Treatment of Children, 25(2), 249-267.	