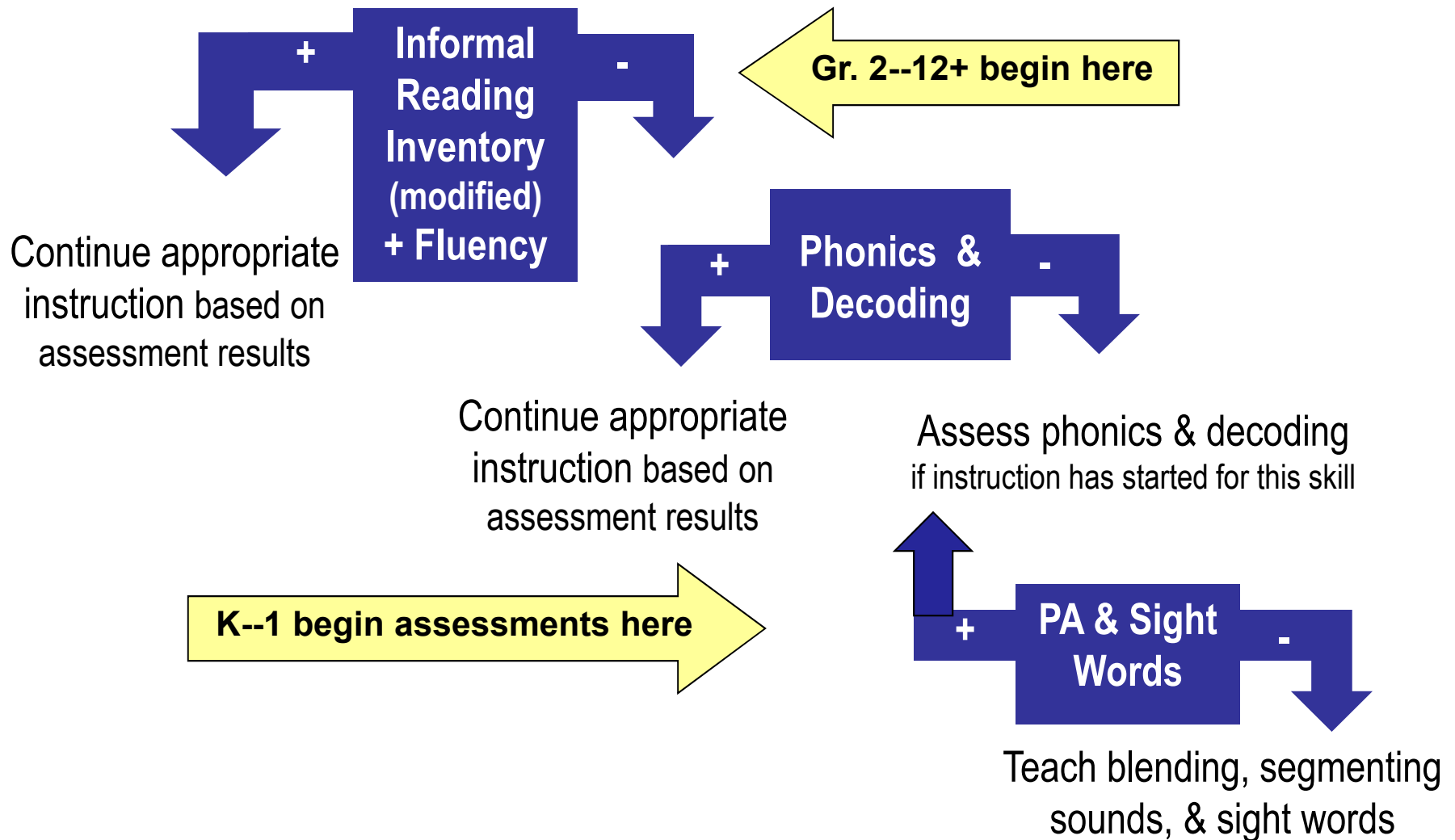


Diagnostic Assessment Sequence



GH GIBSON HASBROUCK & ASSOCIATES

Reading FAST or Reading WELL?

Jan Hasbrouck, Ph.D.

GH GIBSON HASBROUCK & ASSOCIATES www.gha-pd.com

My conclusions from reading research:

Compelling evidence from a convergence of reading research is indicating that **90% to 95% of all students** can achieve literacy levels at or approaching grade level. These statistics include students with dyslexia and other learning disabilities. Students succeed when well-trained and well-supported teachers provide intensive, comprehensive, and high-quality instruction, and targeted intervention as needed.

Jan Hasbrouck, Ph.D.

Torgesen, 2007; Vellutino & Fletcher, 2007; Rashotte, MacPhee, Torgesen, 2001; Al Otaiba, Connor, Fooman, Schatschneider, Greulich, Sidler, 2009; *Every Child Reading: An Action Plan* and *Every Child Reading: A Professional Development Guide*. Available online from Learning First Alliance

Reading Fluency:


Understanding and Teaching this Complex Skill

Jan Hasbrouck, Ph.D.
Deborah R. Glaser, Ed.D.

FOUR MODULES

- Defining & Describing this Complex Skill
- Assessing Reading Fluency
- Planning and Teaching Fluency
- Teaching Fluency through Skill Integration

Available online at www.gha-pd.com



Educators as Physicians:

Using RTI Data for Effective Decision-Making

Jan Hasbrouck, Ph.D.

Four Modules

- Framework for Intervention
- Benchmark/Screening
- Diagnosis
- Progress Monitoring



Summary booklets sold in sets of 4

Available online at www.gha-pd.com

Key Ideas about Reading Fluency

- Fluency is a complex skill.
- Fluency is necessary but not sufficient for reading comprehension & motivation.
- We can use rate PLUS accuracy measures (ORF) for important assessment purposes.
- Some students are fluent enough; others can be taught.
- **FLUENT** reading is **NOT** fast reading!

SERIOUS CONCERNS...

- "Reading fluency has become a speed reading contest."
- "Reading rate is considered a decent measure of reading fluency."

Rasinski & Hamman

Reading Today August/September 2010

HASBROUCK RESPONSE

- “strongly **agree** that there...is ‘an inordinate amount of direct instruction emphasis given to increasing reading speed...’”.
- “I **disagree** with some of the reasons provided for this conclusion... ‘reading RATE (my emphasis) is considered a decent measure of reading fluency.’ This is a common misunderstanding.”

Reading Today October/November 2010

HASBROUCK RESPONSE

- “... sufficient **professional development** [must be] provided to every educator involved in the **assessment** as well as the **instruction** of fluency.”

WHAT?

WHY?

HOW?

Reading Today October/November 2010


What is Reading Fluency?

“...there are still a number of questions surrounding our understanding of what constitutes fluency...”


Kuhn, Schwanenflugel, & Meisinger (2010) p. 230




What is Reading Fluency?
Fluent reading should sound like
SPEECH
Stahl & Kuhn (2002)



What is Reading Fluency?
Reasonably **accurate** reading at an
appropriate **rate** with suitable **prosody**
that leads to accurate and deep
comprehension and **motivation**
to read.
Hasbrouck & Glaser (2012)



What is Reading Fluency?
Reasonably ACCURATE?
Aim for at least _____ % accuracy
(Rasinski, Reutzel, Chard, Thompson, 2011)
Emerging readers: _____ %



What is Reading Fluency?

Appropriate RATE?

_____th %ile on oral reading
fluency (ORF) norms on
unpracticed, grade-level text



What is Reading Fluency?

Suitable PROSODY?

Mirrors spoken language
& *conveys meaning*

BUT abnormal pitch, intonation, phrasing,
pauses can be "suitable"



Robert borrowed my new bicycle.

- **ROBERT** borrowed my new bicycle.
(Robert, not Raymond, borrowed my bike.)
- Robert **BORROWED** my new bicycle.
(Robert did not steal my bike.)
- Robert borrowed **MY** new bicycle.
(Robert didn't borrow your bike, he borrowed mine.)
- Robert borrowed my **NEW** bicycle.
(Robert didn't borrow my old bike, he borrowed the new one.)
- Robert borrowed my new **BICYCLE**.
(Robert didn't borrow my new book, he borrowed my bike.)

Rasinski (2012)

What is Reading Fluency?

The ability to read

- accurately
- quickly
- with expression & phrasing



COMPONENTS of fluency

Expression & Phrasing?

Prosody **REFLECTS**
comprehension skill rather than
CONTRIBUTING to it



COMPONENTS of fluency

What is Reading Fluency?

Word Decoding Skills

- Phoneme awareness
- Letter sounds
- Phonograms

Text Decoding Skills

- Orthographic knowledge
- Sight words
- Decoding connected text
- Multiple cue efficiency

Comprehension Skills

- Metacognition
- Content knowledge
- Vocabulary
- Passage context
- Social context

MECHANICS of fluency

Common Core State Standards: **FLUENCY**



Kindergarten

Read emergent reader texts with purpose & understanding

Grades 1-5

Read with sufficient accuracy & fluency to support comprehension:

- Read on-level text with purpose and understanding
- Read on-level text orally with accuracy, appropriate rate, and expression on successive readings
- Use context to confirm or self-correct word recognition and understanding, rereading as necessary

So...What is Reading Fluency?

A highly **COMPLEX** skill that is **NECESSARY** but not **SUFFICIENT** for students to read **independently, proficiently**, and with **motivation**.



FLUENT reading is not **FAST** reading!

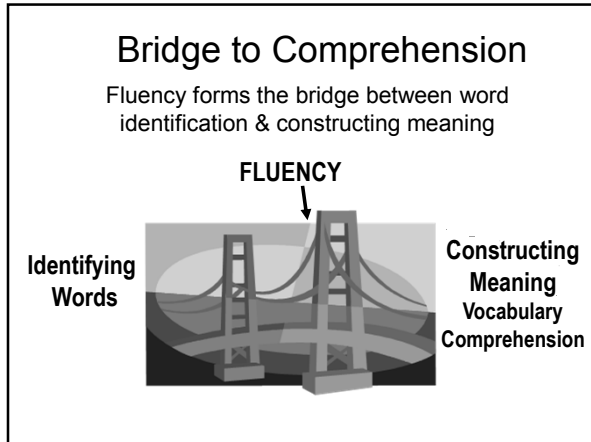
REAL ISSUE:

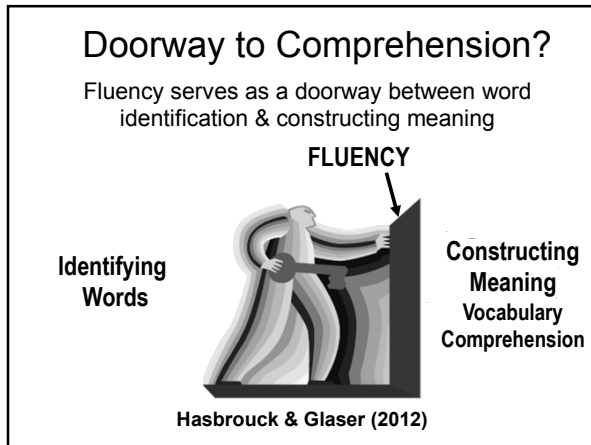
Comprehension & Motivation!

MULTIPLE Causes of Comprehension Problems:

- Lack of sufficient background knowledge
- Lack of sufficient language foundation
- Fails to organize & use information to understand--Does not realize when s/he fails to understand
- Decoding/fluency skills poor







The Role of Fluency in Reading?

- **ACCURACY:** Comprehension is limited by **inaccurate** reading
- **RATE:** Comprehension is limited by inefficient, **slow**, laborious reading
- Lack of fluency = lack of motivation = fewer words read = smaller vocabulary = limited comprehension (*self-perpetuating*)

3 BIG IDEAS

about fluency assessments

1. Assessments of accuracy + rate (ORF) can help determine which students *might* need support (benchmark/screening).
2. ORF assessments can help diagnose a student's individual skill level in reading fluency.
3. ORF assessments can help us determine if a student is making sufficient progress.



“Fluency”
Assessments
**DO NOT
ASSESS**
Fluency!



CBM Assessments of ACCURACY and RATE (ORF)

DIBELS Dynamic Indicators of Basic Early Literacy Skills K-6

Reading Fluency Benchmark Assessor
(RFBA) Read Naturally K-8

AIMSweb Pearson K-8

EasyCBM Riverside K-8

Assessing ORF

the number of words in text read
correctly per minute (wcpm)
or...
letters, sounds, words



Curriculum-Based Measurement (CBM)

Long research history...

Stan Deno University of Minnesota

GOAL:

Develop **QUICK** assessments that were **RELIABLE**
and **VALID** to help teachers:

1. Find students who *MIGHT* need academic help
2. Determine if instruction was **EFFECTIVE**

Curriculum-Based Measurement (CBM)

Reading (Letter name or letter sound fluency;
word fluency; passage ORF; maze),
plus **Math, Spelling, Writing**

LNF; LSF; ORF

- Oral read
- 1:1
- Unpracticed "cold read"
- 60 seconds
- Score: wcpm
(words correct per minute)

Maze

- Silent read & select option
- Group administered
- Unpracticed
- 3 minutes
- Score: wcr
(words correctly restored)

Maze Assessment

The Visitor

Tap, tap, tap. I was reading a book. But (I, top, bit) kept hearing a noise at the (red, eat, window). Tap, tap. I began reading again. (Clunk, Top, Ball) scrape, tap, tap. I looked out (stick, of, sit) the window. It was dark outside. (I, Did, A) couldn't see anything. I looked back (tick, pit, at) my book. It was hard to (so, find, and) my place.

From Hosp, Hosp, & Howell (2007). *The ABCs of CBM*

Maze Assessment

"...although correlations between reading-aloud and criterion measures remained moderate to strong across elementary school grades, they were strongest at the primary grades and decreased at the intermediate grades. No such decrease was seen for maze, which remained fairly stable across the grades... **For secondary-school students, maze may be the best choice.**"

Wayman, Wallace, Wiley, Tichá, & Espin (April, 2007).
Literature Synthesis on Curriculum-Based Measurement in Reading

CBM-R ORF Scores Correlate with Reading Comprehension

Fuchs, Fuchs, Hosp, & Jenkins, SSR, 2001

Measure	Validity Coefficients
Oral Recall / Retell	
Cloze	
Question Answering	
CBM-R ORF	

accuracy + rate ORF measures indicate TOTAL reading skill

**Curriculum-Based
Measurement (CBM)**

25+ years of research has shown that
CBM-R ORF measures that assess
ACCURACY & RATE can:

- Efficiently, accurately (reliable) & effectively (validity) identify student's **CURRENT READING PERFORMANCE** compared to peers

BENCHMARK / SCREENING

**WHICH STUDENTS MIGHT NEED
ASSISTANCE?**

**Curriculum-Based
Measurement (CBM)**

25+ years of research has shown that
CBM-R ORF measures that assess
ACCURACY & RATE can:

- Efficiently, accurately (reliable) & effectively (validity) identify student's **PREDICTED READING PERFORMANCE** compared to established goals

PROGRESS MONITORING

**IS THIS STUDENT MAKING EXPECTED
PROGRESS?**

**Curriculum-Based Measurement
(CBM)- Reading**

STANDARDIZED PROCEDURES

- Production-based: Oral reading
- 1:1 for 60 seconds
- Unpracticed ("cold" read)
- "Do your best reading"— **NEVER** "read as fast as you can!"
- Standardized procedures for scoring errors
- Compute words correct per minute (wcpm)

Say these specific directions to the student:

"I would like you to read this story aloud for me. Please start here (point to the first word on the student's copy) and read aloud. **This is not a race.** Try each word. If you come to a word that you do not know, you may skip it and go to the next word."

FROM: Hosp, Hosp, & Howell (2007). *The ABCs of CBM*, p. 145

Say these specific directions to the student:

"Please read this (point) out loud. If you get stuck I will tell you the word so you can keep reading. When I say "Stop," I may ask you to tell me about what you read, so **do your best reading**. Start here (point to the first word of the passage)."

Start your stopwatch when the student says the first word of the passage.

FROM: Good, R. H., & Kaminski, R. A., & Dill, S. (2007). *DIBELS® Oral Reading Fluency*

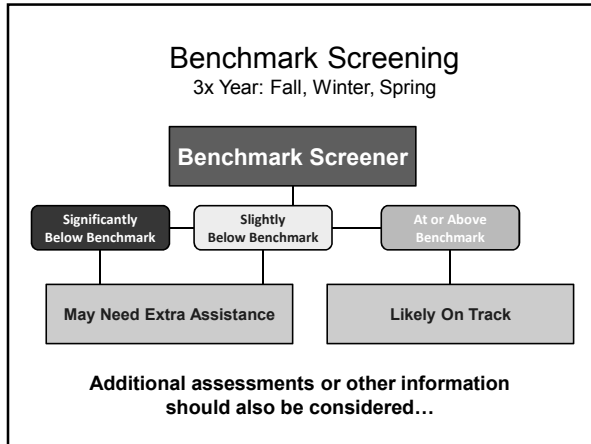
CBM-R ORF Scoring

- Mispronunciation/Substitutions (counted every time)
- Hesitations/No Attempt (3-5 seconds)
- Omissions
- Transposed words

Note but **DO NOT** count as errors:

- ✓ Self-corrections
- ✓ Repetitions
- ✓ Dialect, speech impairments
- ✓ Punctuation errors
- ✓ Insertions





**Concerns about
Benchmark/Screening**

How can a very short measure of a single, isolated reading skill determine proficiency in the highly complex task of reading?

Three Responses

#1: ORF is NOT a measure of the skill of reading fluency!!

**Concerns about
Benchmark/Screening**

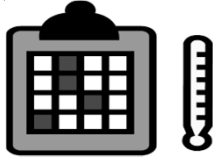
How can a very short measure of a single, isolated reading skill determine proficiency in the highly complex task of reading?

Three Responses

#2: Accuracy + rate assessments function like a thermometer...

QUICKLY provide information

- Valid (relevant, useful, & important)
- Accurate (reliable)
- Compared to benchmark...



FEVER FACTOIDS:

98.6 F or 37.0 C

1861 German physician Dr. Carl Reinhold August Wunderlich from a large sample of healthy individuals

1992 JAMA 98.2 F +/- 0.126 (98.1 F to 98.4 F "normal")

QUICKLY provide information

- Valid (relevant, useful, & important)
- Accurate (reliable)
- Compared to benchmark...



BUT ... body temperature only one single indicator of general health or illness:

Normal? 103 degrees?

CBM-R measures of accuracy + rate provide **one reasonably dependable indicator** of a student's academic "health" or "illness"—**NEVER** a diagnosis for a treatment plan!

Response # 3

25+ years of Curriculum-Based Measurement research!

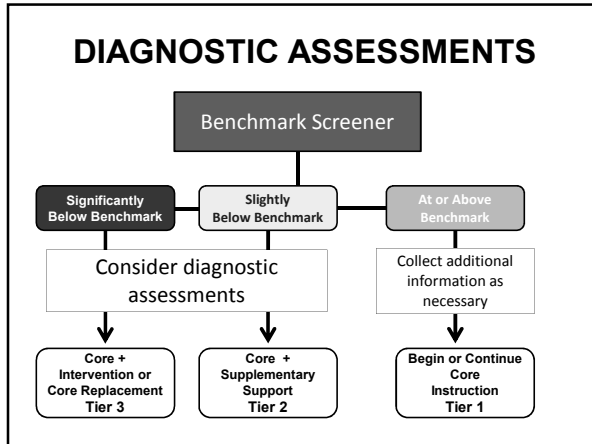
- Reliable
- Valid
- Results useful for key decisions:

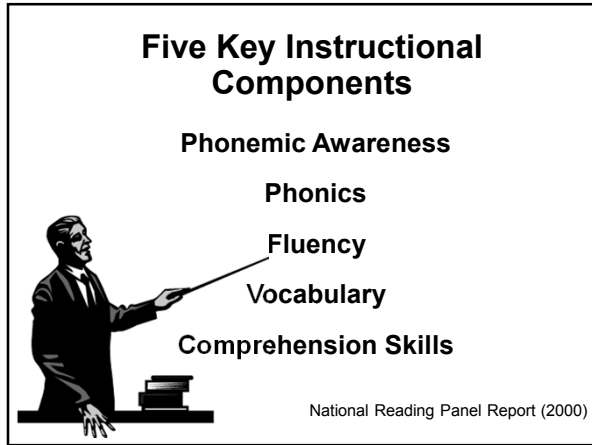
Which students MIGHT need extra assistance?

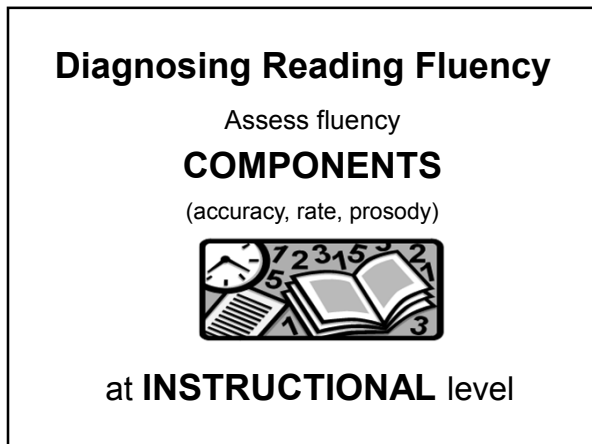
Benchmark/Screening

Is learning happening?

Progress Monitoring







Diagnosing Reading Fluency

Assess fluency

MECHANICS

(word reading fluency; text fluency; comprehension)



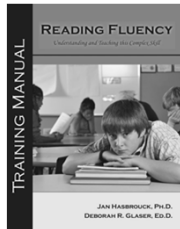
as appropriate...

Reading Fluency:

Understanding and Teaching this Complex Skill

ASSESSMENT CHECKLISTS:

- Phoneme Awareness
- Phoneme Fluency with Print
- High-Frequency Words
- Phonics & Decoding
- Phonograms (e.g., -ake, -ick, -igh)
- Orthographic (spellings)



How

FLUENT

Should Students Be?

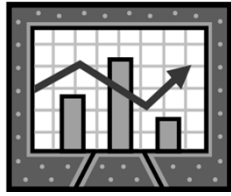
1 NO COMPELLING EVIDENCE

from research or theory or practice that suggest a benefit to reading significantly ABOVE the 50thile

2 SIGNIFICANT EVIDENCE that it is crucial to help students read with fluency at or near the 50thile to support comprehension and motivation

Statistical Terminology

- Obtained Score
- True Score
- Error (“noise”)
- Confidence intervals



Spring 2nd Grade 50th Percentile



89 wcpm

GREEN ZONE

99 wcpm or *higher*
to
85 wcpm

YELLOW ZONE

84 wcpm
to
79 wcpm

RED ZONE

78 wcpm or *lower*

DIAGNOSIS EXAMPLE: FALL

4th grader reading 4th grade passage

94% accuracy
5.5 / 7 comprehension
instructional level

ORF: 83 wcpm



DIAGNOSIS EXAMPLE: WINTER

6th grader reading **5th** grade passage



frustration level

Try 4th grade passage...

DIAGNOSIS EXAMPLE: WINTER

6th grader reading **4th** grade passage



93% accuracy
6 / 8 comprehension

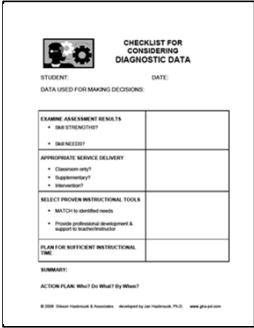
instructional level

ORF: **113 wcpm**




Using DIAGNOSTIC Data


- Examine assessment results: Skill **STRENGTHS**?
Skill **NEEDS**?
- Appropriate **SERVICE DELIVERY**: Classroom only?
Supplementary? Intervention?
- Select proven instructional tools **MATCHED** identified needs-- *Provide professional development & support*
- Plan for sufficient instructional **TIME**



Available for download at:
www.gha-pd.com/resources




CBM-R for Progress Monitoring



Scores compare students' to individual goals rather than grade norms

CBM-R Progress Monitoring DIFFERENCES



- Frequency
- Level of passages?
- Number of passages?
- Graph results

CBM Monitoring Reading Progress
using CBM-R accuracy + rate measures

- Assess 1x week or 2x month (?)
- Use **INSTRUCTIONAL** or **GOAL** or level (?)
- Obtain equivalent passages
- One passage each time (?)
- Set up a graph with an "aimline"
- Administered 1:1
- 1 minute oral reading sample or maze
- Score for words correct per minute



INTERPRETING
Progress Monitoring Graphs



General Rules:

from National Center for Progress Monitoring

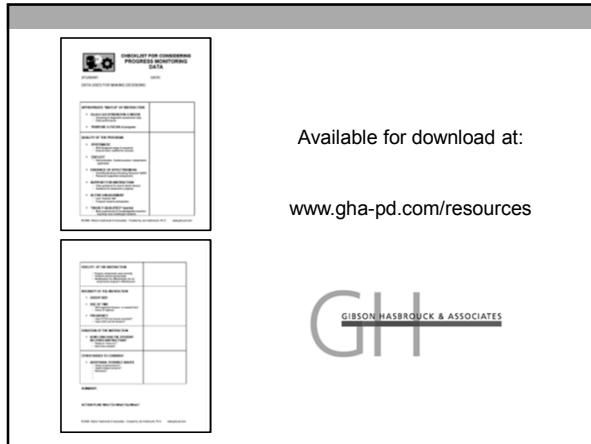
Use 5 consecutive scores.

- If all **ABOVE** goal-line:
Keep current intervention and increase goal
- If all **BELOW** goal-line:
Keep current goal and modify the instruction
- If **NEITHER ABOVE OR BELOW** goal-line:
Maintain current goal & instruction & continue monitoring



**What to
MODIFY ?**


- Appropriate "**MATCH**" of instruction
- **QUALITY** of program & instruction
- **FIDELITY** of instruction
- **INTENSITY** of instruction
- **DURATION** of instruction



Available for download at:
www.gha-pd.com/resources

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WHAT DO WE DO WITH FLUENCY ASSESSMENT DATA?



WEAK comprehension
pervasive patterns of difficulty in interacting with & constructing meaning from text

- Assess listening comprehension to determine strengths/weakness in vocabulary or language-related issues
- Assess phonemic awareness & teach if necessary
- Assess phonics/decoding & teach if necessary
- Teach fluency explicitly
- Teach comprehension strategies
- Teach vocabulary

WEAK fluency
more than 10 words below 50th %ile on H&T norms on grade level ORF

STRONG
comprehension

WEAK fluency
more than 10 words below
50th %ile on H&T norms
on grade level ORF

- Assess phonics/decoding & teach if necessary
- Assess sight word knowledge
- Teach fluency explicitly
- Challenge with high-level comprehension and vocabulary

WEAK comprehension
pervasive patterns of difficulty in interacting
with & constructing meaning from text

STRONG fluency
at or above 50th %ile
on H&T norms
on grade level ORF

- Teach comprehension strategies
- Teach vocabulary

STRONG
comprehension

STRONG fluency
at or above 50th %ile
on H&T norms on grade
level ORF

- Challenge with high-level comprehension and vocabulary

Developing Fluency

A product of accuracy and automaticity
at the letter, letter-pattern, word, and
connected text levels



Research on Fluency Instruction

BOTTOM LINE:

“It is critical that we
establish...instruction that
assist(s) learners in
becoming truly fluent readers
rather than just fast ones.”



Kuhn, Schwanenflugel, & Meisinger, (2010) p. 246

Research on Fluency Instruction

BOTTOM LINE:

“Reading fluency, in all its
multifaceted glory...is the
natural result of explicit,
systematic, and comprehensive
instruction coupled with large
amounts of carefully
orchestrated reading practice.”




Hudson, Pullen, Lane, & Torgesen, (2009), p. 26

Research on Fluency Instruction

BOTTOM LINE:
The natural result of **INSTRUCTION**

- Explicit
- Systematic
- Comprehensive instruction

PLUS
Lots of carefully orchestrated reading **PRACTICE**




Hudson, Pullen, Lane, & Torgesen, (2009)

Fluency Instruction


TRIPLE A:
Hasbrouck & Glaser (2012)

- Read words with reasonable **ACCURACY**
- Read words and connect with ideas **AUTOMATICALLY**
- **ACCESS** meaning



Research on Fluency Instruction

- **Oral, guided** reading practice **with feedback** improves fluency for "typical" students
- Independent practice (**silent reading**) NOT sufficient to improve fluency



NICHHD (2000)

Research on Fluency Instruction

- **Repeated reading (deep reading)** remains the “gold standard”
- **Assistance** more effective (feedback; reading with model)
Kuhn & Stahl (2003)
- **Prosody** develops from acquiring efficient word & text reading skills
Kuhn, Schwanenflugel & Meisinger (2010)



Research on Fluency Instruction

- **Wide reading** (vs. repeated reading) may be best strategy for improving fluency for some
Kuhn et al., 2006
- Wide reading must be **monitored** & students held **accountable**
Reutzel et al., 2008



Research on Fluency Instruction

- **Structured partner reading** improves fluency
Osborn, Lehr & Hiebert (2002)
- **Cueing** for accuracy & rate helps improve fluency
O'Shea & Sindelar (1984)



Research on Fluency Instruction

- **Challenging** passages (85% accuracy) beneficial with sufficient support & monitoring
Stahl & Heuback (2005)
- **Combining** three research-proven strategies (modeling, repeated reading, progress monitoring) effective & motivating
Hasbrouck, Ihnot, & Rogers (1999)



FLUENCY INSTRUCTION

Tier 1: On Level

Students at benchmark and able to succeed with classroom instruction

Tier 2: Supplementary

Students needing some extra targeted skills instruction to keep them at level or catch them up

Tier 3: Intensive

Students significantly behind their peers or with special learning challenges



FLUENCY INSTRUCTION

ALL STUDENTS Tiers 1, 2, 3

In-class practice opportunities

SUPPLEMENTAL & INTERVENTION

Tiers 2 & 3

Explicit, systematic instruction & supervised, sustained practice



Passage Reading Practices to Improve Fluency

TRADITIONAL PRACTICE:

Round robin reading
from science, social studies,
literature, chapter books

Students take turns
reading parts of a text aloud





Disadvantages of Round Robin Reading:

Drop everything and read: But *how*?
Jan Hasbrouck (Summer, 2006)

ALTERNATIVES to Round Robin



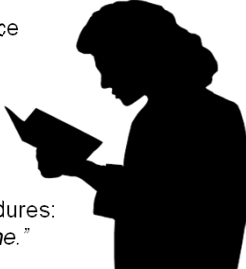
- ✓ Choral Reading
- ✓ Cloze Reading
- ✓ Partner Reading

CHORAL READING

Whole class reads **ALOUD & TOGETHER**
from same selection
NON-THREATENING practice

PROCEDURE

- Orally read with students
- Read at a moderate rate
- Use pre-correction procedures:
"Keep your voice with mine."



CLOZE READING

ASSISTS students in reading difficult material
Provides **GROUP PRACTICE & MAINTAINS**
student **ATTENTION**

PROCEDURE

- Orally read the material to students
- Read at a moderate rate
- Pause & have students say the next word
- Intentionally delete "meaningful words"

The Right to Read

Reading is important. It is a useful skill. People who can read have an easier time in life. They can read traffic signs, menus and maps. They can pass a test to get a driver's license. They can apply for a job. Reading is also powerful. People who can read can learn about all kinds of things.

However, not everyone can read. Some experts study reading. They say that one out of every sixth person in the world can't read. There are many reasons for this problem. Some countries do not let girls go to school. In those countries, many women cannot read. Other people live in very poor countries. No one can afford to learn to read in these countries. They are busy trying to find food to eat. Many countries are at war. Their people are fighting to stay alive. They do not have time to learn to read.

STRUCTURED PARTNER READING

PROCEDURE

- ASSIGN students partners
- Designate amount to read to partner
- When an error is heard, teach students to use the "Ask, then Tell" procedure:

ASK "Can you figure out this word?"

TELL "The word is ____." "Read the sentence again."

Establishing Partners

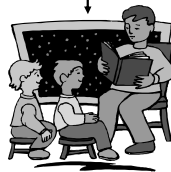
- Avoid pairing highest and lowest skilled readers
- Consider taking lowest readers into a small group for practice with the teacher



Establishing Partners

- | | | |
|------------|---|----------------|
| 1. Ebonie | → | 11. Michael |
| 2. Jazmine | → | 12. Andrea |
| 3. Bobby | → | 13. Ezra |
| 4. Celisse | → | 14. Juan |
| 5. Marsha | → | 15. Amy |
| 6. Krishon | → | 16. Hyun Ha |
| 7. Sammy | → | 17. Mari |
| 8. Isaac | → | 18. Harry |
| 9. Orlando | → | 19. Sarah Jane |
| 10. Miquel | → | 20. Ashley |

- | |
|---------------|
| 21. Quan |
| 22. Kyesha |
| 23. Francisco |
| 24. Angelica |



PARTNER READING VARIATIONS

Side by Side- Reading to a Partner

Students sit next to each other with one book between them. One partner reads & points to the words; the other partner follows along.

Shoulder to Shoulder- Reading to a Partner

Students sit facing opposite directions with shoulders aligned. Each partner has a book.

Reading WITH a Partner

Students sit side to side with one book between them. Both partners read at the same time as partner one touches the words.

FLUENCY INTERVENTION

THREE STEP MODEL

✓ **ACCURACY**

✓ **RATE**

✓ **GRAPHING FOR FEEDBACK**



FLUENCY INTERVENTION

THREE STEP MODEL

✓ Place students in appropriate level

✓ Assign wcpm goal:

Placement baseline **+ 30** for Gr. 1.5 to Gr. 4


Placement baseline **+ 40** for Gr. 5+



FLUENCY INTERVENTION

(1) FOLLOWING A MODEL

Reading along with a model of **ACCURATE** reading from an audio tape/CD
OR a skillful reader

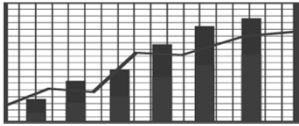


(2) REPEATED READING

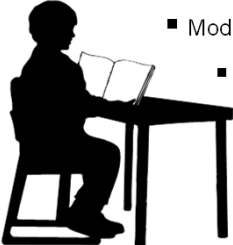
Students **REREAD** passage orally to themselves or a partner until goal achieved (4-10 times)

(3) MONITORING PROGRESS

Students **GRAPH** their performance:
“Cold” reading first; then again after practice



PROVIDING FLUENCY INTERVENTION AT A CHALLENGING INSTRUCTIONAL LEVEL



- Model to provide **SCAFFOLDING**
- Students must **WORK HARD** toward achieving goal to see real progress
 - **3X PER WEEK**
25 minutes *minimum*

**Providing Fluency Instruction
to BEGINNING Readers?**

FOUNDATION of fluency?

ACCURACY!



At the **SOUND, WORD, & PHRASE** level

Commercial Fluency Programs

▪ **Read Naturally**

Levels .8- 8.0

Audio tapes/CD or
software editions

▪ **Six Minute Solution**

K-2 Gr 3-6 Gr 6-9

Partner reading practice



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NATIONAL ORAL READING FLUENCY NORMS

Hasbrouck & Tindal (2006)

Grade	Percentile	Fall WCPM*	Winter WCPM*	Spring WCPM*
1	90		81	111
	75		47	82
	50		23	53
	25		12	28
	10		6	15
2	90	106	125	142
	75	79	100	117
	50	51	72	89
	25	25	42	61
	10	11	18	31
3	90	128	146	162
	75	99	120	137
	50	71	92	107
	25	44	62	78
	10	21	36	48
4	90	145	166	180
	75	119	139	152
	50	94	112	123
	25	68	87	98
	10	45	61	72
5	90	166	182	194
	75	139	156	168
	50	110	127	139
	25	85	99	109
	10	61	74	83
6	90	177	195	204
	75	153	167	177
	50	127	140	150
	25	98	111	122
	10	68	82	93
7	90	180	192	202
	75	156	165	177
	50	128	136	150
	25	102	109	123
	10	79	88	98
8	90	185	199	199
	75	161	173	177
	50	133	146	151
	25	106	115	124
	10	77	84	97

*WCPM = Words Correct Per Minute

NATIONAL ORF NORMS

50th Percentiles

Hasbrouck & Tindal (2006)

Grade	Fall wcpm	Winter wcpm	Spring wcpm
1		23	53
2	51	72	89
3	71	92	107
4	94	112	123
5	110	127	139
6	127	140	150
7	128	136	150
8	133	146	151

GREEN zone 10 or more to -4 YELLOW Zone -5 to -10 RED Zone > 10 below