

Formative Assessment & Intervention

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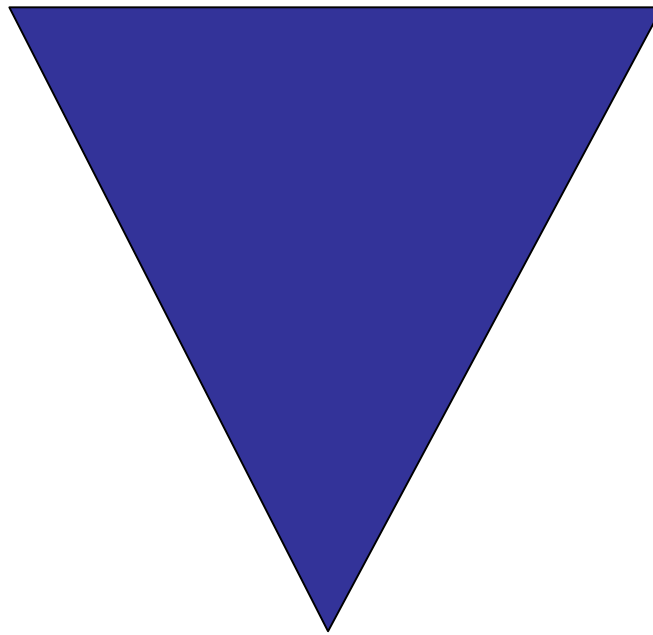
Beth Kobett

6/11/10

Assessment Triangle

Observation

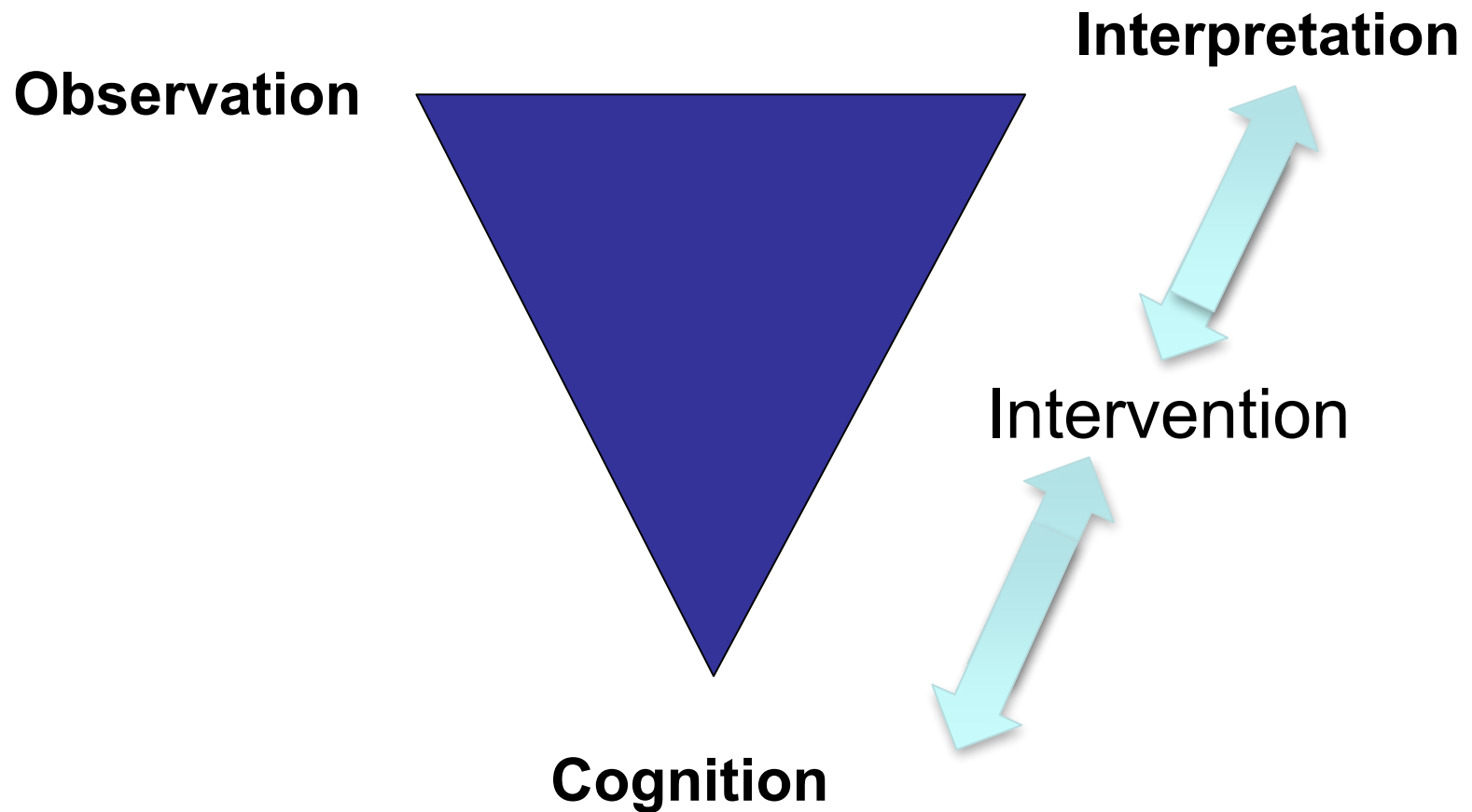
Interpretation



Cognition

Where does Intervention fit within the Assessment Continuum?

Assessment Triangle





Classroom Assessment

These very important assessments need to inform teaching - daily.

What is Intervention?

- What is Rtl aka Response to Intervention?
- What does intervention look like in schools?
- How do we maintain high-quality instruction in an intervention program?
- Who should receive intervention?

Rtl is typically thought of as having three tiers, with each tier having specific characteristics (Fuchs, Fuchs, and Vaughn, 2008), although some settings include more than three tiers for the intervention support

What do the tiers “look like”?

- Tier 1 – typically classroom-based intervention aligned with the specific mathematics curriculum topics received by all students in the class. All students are assessed or screened and particular interventions (e.g. more time on a concept, use of a particular model, more practice, etc.) are determined and typically implemented by the classroom teacher.
- Tier 2 – students receiving tier 2 interventions have typically demonstrated a greater need for targeted assistance in key mathematics concepts. Such intervention may be in small group settings in the classroom or as supplemental instruction provided by the classroom teacher, a mathematics specialist or instructional assistant. This additional time for mathematics, will vary, but may range from 20-40 minutes four-five times a week (Fuchs, Fuchs, and Craddock, et al, 2008).
- Tier 3 – students in need of tier 3 interventions require more intensive assistance. Such intervention programs are likely to be supplemental and occur outside of the daily mathematics lesson. One-on-one tutoring and additional supplemental support in mathematics tend to be the norm at the tier 3 level. Special education services and professionals may be involved at this level as the interventionist, although in some settings the classroom teacher may have this responsibility. At the tier 3 level foundational mathematics topics must be central to the instructional activities delivered.

Intervention programs typically engage a teaching-learning cycle which includes a diagnostic assessment to screen for and identify specific learner needs, instructional actions that are linked to the identified needs and follow-up assessments to monitor progress. Given the impact of NCLB/ESEA and IDEA, it is encouraging to note that while established Rtl programs in the area of mathematics are not commonplace, they are emerging.

Rtl - Recommendation 1

Screen all students to identify those at risk for potential mathematics difficulties and provide interventions to students identified as at risk.

Level of Evidence: Moderate

Consider how assessments inform classroom decision-making...

- Who is enriched...
- Who is remediated...
- Who is accelerated...
- Who gets intervention...



Who is left alone...

- Consider assessments (all assessments) as snapshots within a much larger album or record of learning.



Continuum of Assessment Distance

- **Immediate** – informal observation or artifacts from a lesson.
- **Close** – embedded assessments and semi-formal quizzes following several activities.
- **Proximal** – formal classroom exams following a particular curriculum.
- **Distal** – criterion-referenced achievement tests such as those required by NCLB.
- **Remote** – Broad outcomes measured over time – norm referenced tests.

Informal Assessments

- Observations
- Anecdotal Reports
- We know it is **more** informative to observe a student during a mathematical activity than to grade his papers. (Freudenthal, 1973)

- Grade 2 - Joyce was having a bad day in second grade. I attempted to help her while she was working with 2-digit subtraction with regrouping. When I attempted to help her, she responded with “I don’t get it! I don’t understand where you’re getting these numbers.” At this point, she was crying openly and lying across her desk pounding her fists saying, “It’s not fair, I don’t understand.”

[Student], EDU 556, March, 2004.

- Grade 5 - Sara seemed anxious to me. After a while she asked me for some help. I sat down with her and talked her through the problem. I asked her questions about the problem and gave her a little clue, then she got that spark! **Oh, I know now**, she said. She seemed to understand completely (3 instances).

[Student], EDU 556, March, 2004

- Sources of assessment information: homework, projects, notebooks, journals, quizzes, and tests.
- The ability of the teacher to interpret and make judicious strategic use of assessment information from many sources is a critical factor in instructional effectiveness.

RtI - Recommendation 3

Instruction during the intervention should be explicit and systematic. This includes providing models of proficient problem solving, verbalization of thought processes, guided practice, corrective feedback, and frequent cumulative review.

Level of Evidence: Strong

Activity 2:

Your class is in charge of storing the cartons until they are taken to the recycling center.

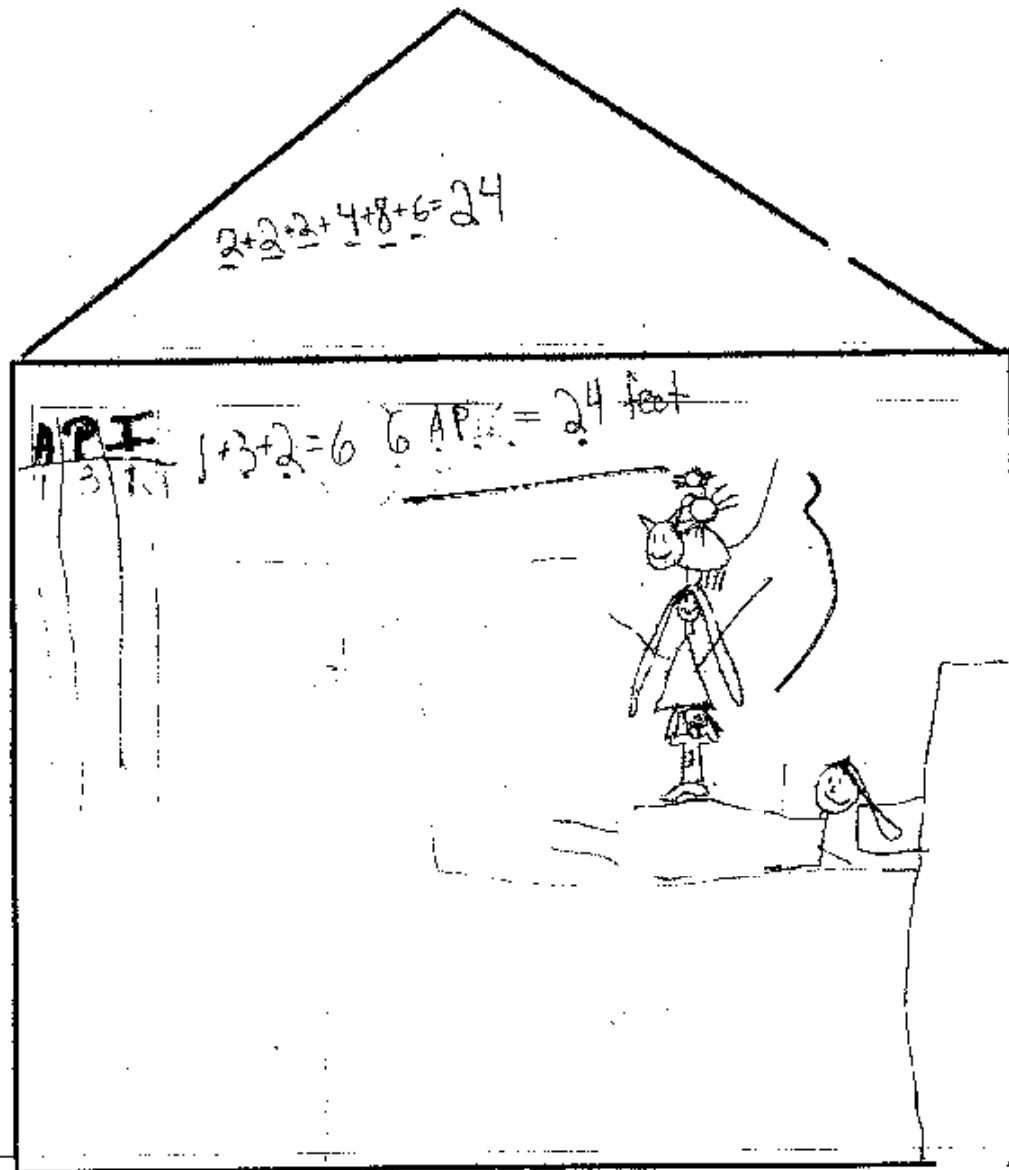
Your principal has found some space in a storage closet. The space is shaped like a rectangle. It is 12 meters by 9 meters. Your class decides to block off your storage area by putting a fence around the edge of the space. How much fencing would your class need to have?

43 meters X

Write one or two sentences to explain how you determined the amount of fencing needed.

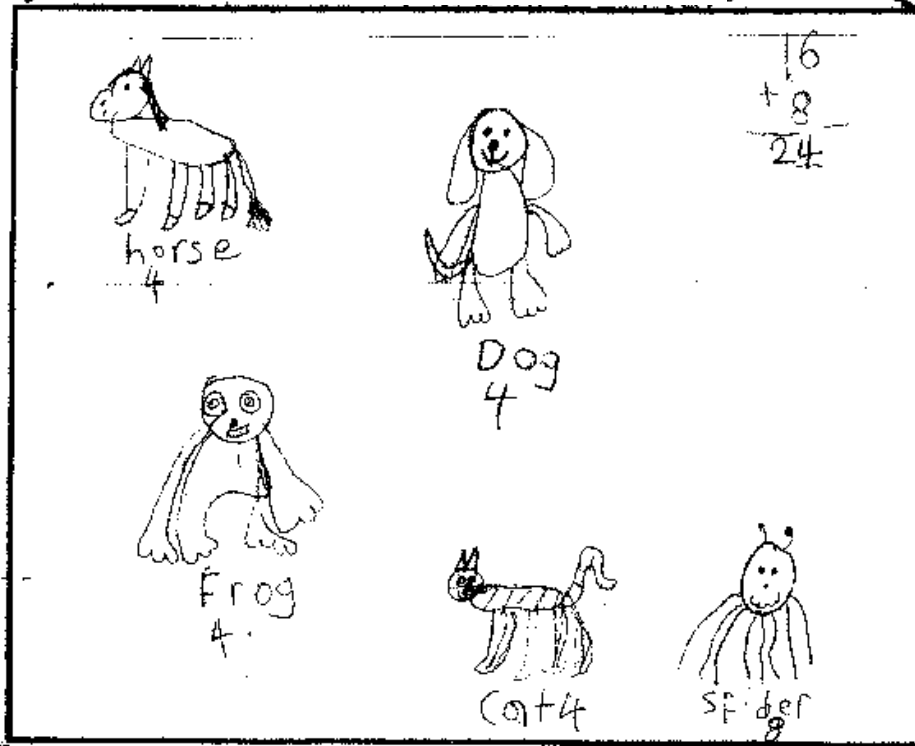
I did. I add $18 + 24 = 42$. I add one more because
I want to make sure there's roof fencing
so I go 43.

There are 24 feet in the house?
Who could be in the house?



There are 24 feet in the house?
Who could be in the house?

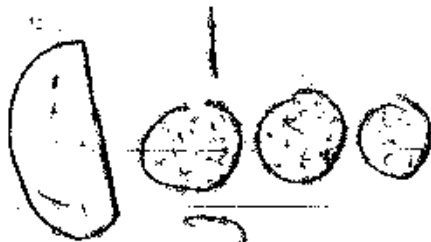
I added
the four groups
of 4 and all 4 together
made 16 then I added the
8.



Name _____

Four children want to share 14 cookies.

How many will each child get?



COKEYS

Rtl - Recommendation 4

Interventions should include instruction on solving word problems that is based on common underlying structures.

Level of Evidence: Strong

Formative Assessment Moments

- Observations - *Spending time, making time to watch.*
- Conversations - *How did you do that? Why did you do that? Could we do this another way?*
- Interviews - *One-on-one. Content and Affect.*
- Journals - *Student reflections - powerful!*

- Interviewer: Melanie these two circles represent pies that were each cut into eight pieces for a party. This pie on the left had seven pieces eaten from it. How much pie is left there?
- **Melanie:** *One-eighth, writes $1/8$.*
- Interviewer: The pie on the right had three pieces eaten from it. How much is left of that pie?
- **Melanie:** *Five-eighths, writes $5/8$.*
- Interviewer: If you put those two together, how much of a pie is left?
- **Melanie:** *Six-eighths, writes $6/8$.*
- Interviewer: Could you write a number sentence to show what you just did?
- **Melanie:** *Writes $1/8 + 5/8 = 6/16$.*
- Interviewer: That's not the same as you told me before. Is that OK?
- **Melanie:** *Yes, this is the answer you get when you add fractions.*

During the Lesson

- Warm Up
 - prerequisite background
 - review
 - preassessing
- During the lesson's development
 - monitoring progress via questioning
 - monitoring progress via walking around
- End of the lesson
 - lesson closure
 - end-of-lesson task

The message below was sent in response to your "Go Ahead, Teach to the Test!" President's Message. I'm forwarding in case you want to reply.

From: [NCTM member's name]
Sent: Sunday, June 06, 2010 2:45 AM
To: NCTM
Subject: NCTM Web Site Feedback

The question I found lurking in my thoughts as I read the article was, "What about grading?"

Are we supposed to grade formative assessments? If so, how much of the grade should they be worth? If not, how do we deal with students who choose to talk story instead of participating? If most of the class understands the concept, do I move on? If so, what do I do with those who don't?

There are many mysteries in grading and assessment for me, and efficient methods continue to elude me. I cannot figure out how to assess and grade 160 students without employing my husband to help me grade papers all night. How can I create reliable assessments that grade themselves?

[NCTM member's name]
[City, State]

RtI - Recommendation 5

Intervention materials should include opportunities for students to work with visual representations of mathematical ideas and interventionists should be proficient in the use of visual representations of mathematical ideas.

Level of Evidence - Moderate

The Number line and Place Value

How does the number line representation present a visual aid for demonstrating place value understanding?

How can we use it to assess number sense?

[Where Does 29 go?](#)

Maybe Frog Hops will Help?



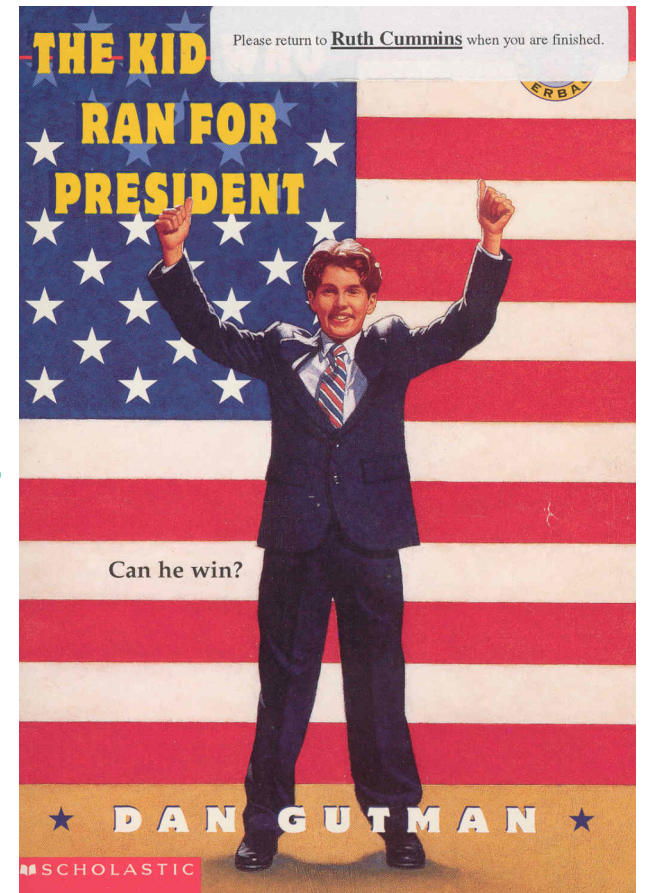
- [Hopping to Place Value](#)
- www.livescribe.com/cgi-bin/WebObjects/LDApp.woa/wa/MLSOverviewPagehttp://?sid=Gp6s29LMNPFC

How does understanding both process and procedure aid us in selecting intervention techniques?

- [Subtraction with Regrouping](#)
- [Sharing Subs](#)

[Student] for President

- Algorithmic Understanding



Taking Time Individually

The Interview

Content Interview - Probe

- This is a diagnostic tool to determine areas of need; the focus is content.
- Conceptual understanding – one-two items designed to show if the student understands a particular process.
- Computational fluency – Enough (5-7) examples for the student to demonstrate proficiency.
- Problem solving – one-two items to put the skill in context.
- Disposition – one-two items about student interest relative to the topic being assessed.

Assessing Disposition

Group Work Checklist

	Seldom	Occasionally	Often
Cooperates			
Discusses			
Uses Effective Strategies			
Proceeds to the solution			
Shares thinking			

What I know	What I need to know	Think space

Self Monitoring Questions

- What are you doing?
(Can you describe it precisely?)
- Why are you doing it?
(How does it fit into the solution?)
- How does it help you?
(What will you do with the outcome when you get it?)

Schoenfeld, 1985, p. 374



High stakes are for tomatoes!

Susan Ohanian

Finally!



Tests are thermometers, not cures. At best, they sample where we are and hazard a guess as to what a rise or fall might mean.