



# *LEA Perspectives on Rtl Implementation in Mathematics*

Karen Cheser, Ed.D.

Superintendent, Fort Thomas Independent Schools, KY



# NKY Makerspace

Our world is what we make it



**Got It Made**

A Boone County robotics team needed a place to program, build, and tinker. So they created one.

— ADAM FLAND

Each year, the FIRST LEGO League issues a mission to teams across the globe as part of its annual World Class Project. In 2014, it was simple: create an educational solution that adds value to society, be it through invention or reinvention. The Junior Brainy Bots at Gray Middle School heeded the call and the NKY MakerSpace was born. After receiving funding from Leadership Northern Kentucky, a group of seven middle-schoolers, along with the Brainy Bots squad from Ryle High School, renovated an old Boone County School District building into a six-room learning laboratory. Then the fun began...

**VIDEO ROOM**  
Complete with a full Final Cut Pro editing suite and HD cameras, students can use green-screen technology to work with different backgrounds.

**ROBOTICS ROOM**  
For the second part of the FLL Project, the Junior Brainy Bots programmed LEGO-based robots using NXT Mindstorms brains-to victory in the FLL Kentucky state competition and advanced to the World Finals in St. Louis.

**3D PRINT ROOM**  
Here students drop beads and rhymes for a Maker-Space poem using sound-proofing equipment and a high-quality microphone. This space combined with the video room? We hear Oscar music.

**ENGINEERING ROOM**  
Air Force veteran Bill Schneider uploads aviation affirmations on the basis of flight plans. Once students learn to plot a route, they can use flight simulators on computers full of engineering-based programs.

**DESIGN THINKING ROOM**  
White-board draped tables fuel creative planning. Students can program an infinite board—essentially miniature computer chips—and 3D print with a traditional printer or handheld 3D printer.

**MAKE YOUR OWN ROOM**  
Consider this the catch-all, tinker-with-whatever-space. Disposable old rotary phones, plug apart circuit boards, or as this group of students chose, build a geodesic dome out of newspaper and modeling tape.

74 SEPTEMBER 2015



# What Works Clearinghouse

## Response to Intervention in Early Reading and Mathematics: Moving Evidence on What Works into Practice

Event Transcript – Wednesday, June 10, 2009



EDUCATION WEEK

### **'Response to Intervention' in Math Seen as Challenging**

**Educators Explore Advice Laid Out in New Federal Practice Guide on Topic**

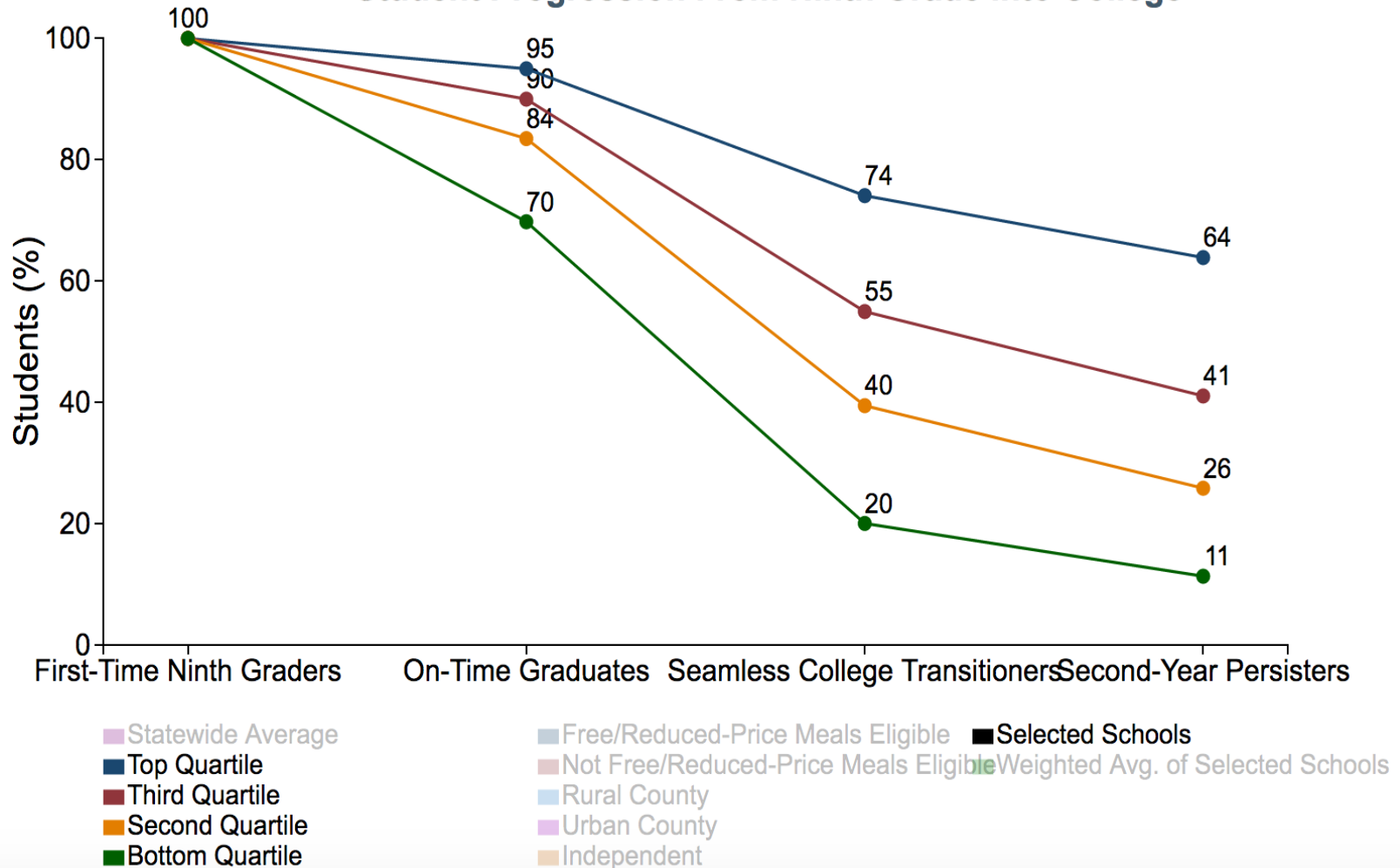
By **Christina A. Samuels**

June 16, 2009

# The College-Going Pathway



## Student Progression From Ninth Grade Into College

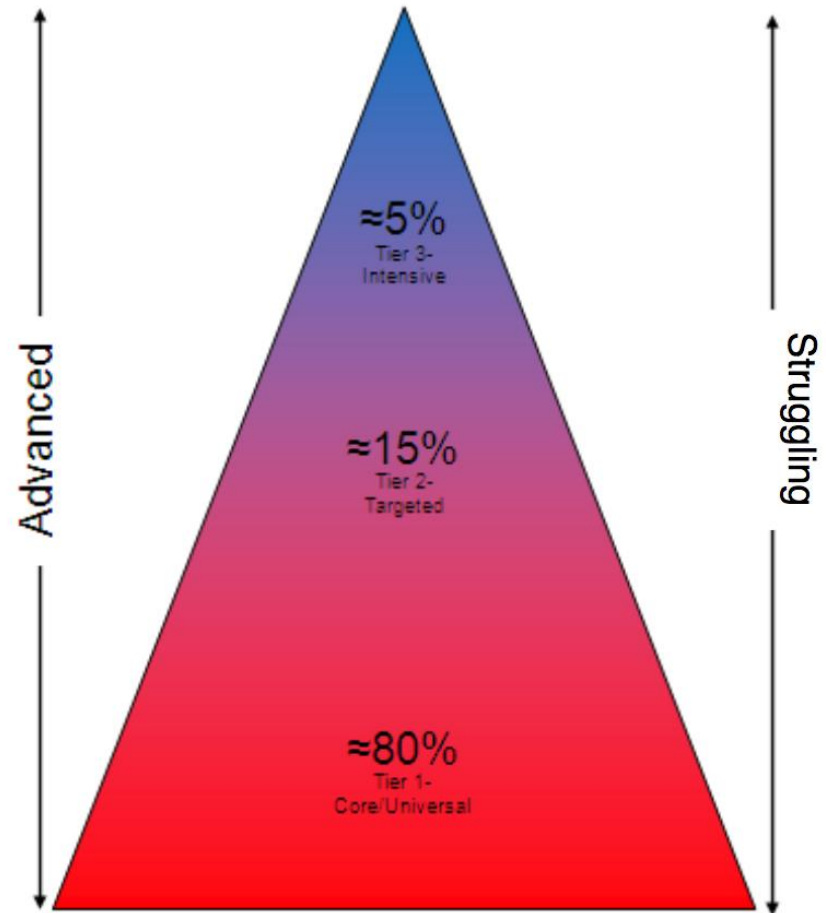


# Purpose



# A GUIDE TO THE KENTUCKY SYSTEM OF INTERVENTIONS

## Kentucky System of Interventions (KSI)



**704 KAR 3:095. The Use of Response-to-Intervention in Kindergarten through Grade 3.**

RELATES TO: KRS 158.305

STATUTORY AUTHORITY: KRS 158.305(2)

NECESSITY, FUNCTION, AND CONFORMITY: KRS 158.305(2) requires the Kentucky Board of Education to promulgate administrative regulations for the district-wide use of a response-to-intervention system for students in Kindergarten through Grade 3. This administrative regulation establishes the requirements for a district-wide response-to-intervention system for students in Kindergarten through Grade 3.

Section 1. Definitions. (1) "Core instruction" means instruction based on the state's academic standards as set forth in 704 KAR 3:303 and provided to all students.

(2) "Differentiated core academic and behavioral instruction" means the tailoring of curriculum, teaching environments, and practices to create appropriately different learning experiences for students to meet each student's needs while recognizing each student's learning differences, varying interests, readiness levels, and level of responsiveness to the standard core instruction.

(3) "Evidence-based" means classroom practices for which there is strong evidence of success.

(4) "Implemented with fidelity" means the accurate and consistent provision or delivery of instruction as it was designed.

(5) "Intensive academic and behavioral intervention" means that, in addition to core instruction and targeted intervention instruction, a student is provided additional intervention services that are tailored to the student's individualized academic or behavioral needs.

(6) "Intervention" means an educational or behavioral instruction, practice, strategy, or curriculum that is provided to meet a student's academic and behavioral needs, in addition to core instruction.

(7) "Response-to-intervention" means a multi-level prevention system to maximize student achievement and social and behavioral competencies through an integration of assessment and intervention.

(8) "Targeted intervention" means the use of screening data to design appropriate interventions provided, in addition to core instruction, if a student's universal screening and other data results indicate that the student has not mastered a benchmark skill or grade level expectation in mathematics, reading, writing, or behavior.

(9) "Universal screening" means screening that uses specific criteria to evaluate the learning and achievement of all students in academics and related behaviors, that may include learning differences, class attendance, tardiness, and truancy, to determine which students need closer monitoring or an intervention.

Section 2. Each local district shall implement a comprehensive response-to-intervention system for Kindergarten through Grade 3 that includes:

(1) Multi-tiered systems of support, including differentiated core academic and behavioral instruction and targeted, intensive academic and behavioral intervention, delivered by individuals most qualified to provide the intervention services, that maximize student achievement and reduce behavioral problems;

(2) Universal screening and diagnostic assessments to determine individual student needs and baseline performance;

(3) Interventions that:

(a) Are evidence-based;

(b) Vary in intensity and duration based on student need;

(c) Meet the needs of the individual student;

(d) Are implemented with fidelity;

(e) Are delivered by individuals most qualified to provide the intervention services; and

(f) Are monitored through a comparison of baseline data collected prior to intervention and ongoing progress data;

(4) Support for early intervention to address academic and behavioral issues; and

(5) Data-based documentation of:

(a) Assessments or measures of behavior;

(b) Progress during instruction;

(c) Evaluation, at regular intervals, for continuous progress; and

(d) Individual student reports shared with the parents of each student in Kindergarten through Grade 3 that summarize the student's skills in mathematics, reading, and writing; the student's behavior; and any intervention plans and services being delivered.

### Achievement - Mathematics - Middle School - Performance Level



	Number Accountable 100 days enrolled	Percent Novice	Percent Apprentice	Percent Proficient	Percent Distinguished	Percent Proficient/Distinguished
Grade	State	State	State	State	State	State
► <a href="#">06</a>	49,908	14.8	35.1	35.0	15.2	50.2
► <a href="#">07</a>	49,888	17.0	37.6	32.4	13.0	45.4
► <a href="#">08</a>	49,363	17.6	36.9	33.9	11.7	45.5



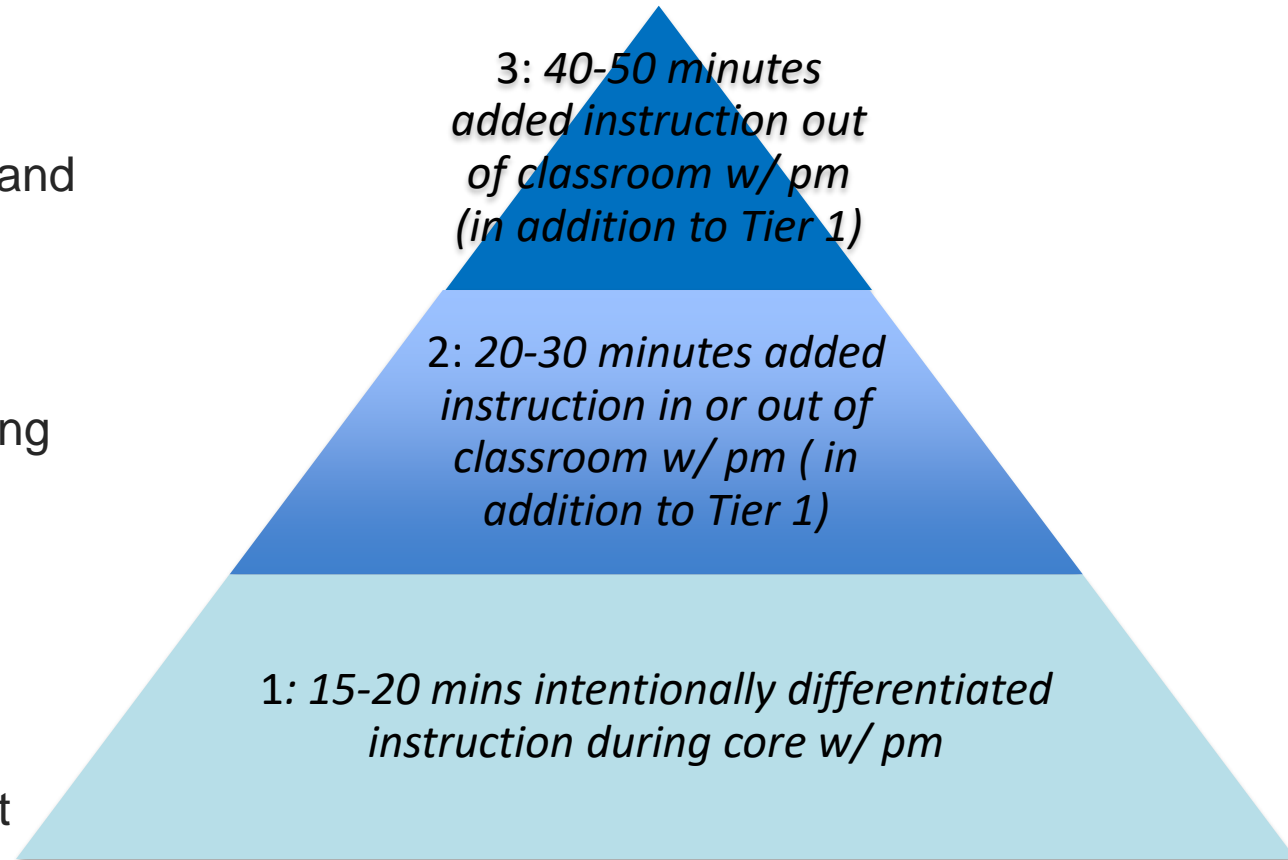
### Achievement - Mathematics - Middle School - Group - Disability-With IEP (Total) - Performance Level

	Number Accountable 100 days enrolled	Percent Novice	Percent Apprentice	Percent Proficient	Percent Distinguished	Percent Proficient/Distinguished
Grade	State	State	State	State	State	State
06	6,132	42.3	37.4	15.8	4.5	20.3
07	5,919	42.4	39.8	14.5	3.2	17.8
08	5,404	47.7	36.8	13.0	2.5	15.5

Only **Policy** that  
includes **Process**  
and **Professional**  
**Learning** will lead  
to **Practice**

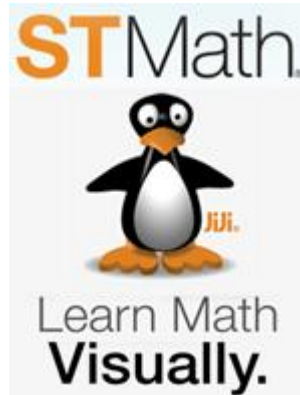
## Boone County Schools RtI Process

- Built on Strong Core Instruction
- Progress Monitoring and Benchmarking using STAR
- Vetted interventions
- Advisory Team Meeting process
  - Modeled by instructional coaches
  - Led by principal
  - Fueled by district



# Obstacles/ Solutions

- |   |   |
|---|---|
| 1. Lack of math content knowledge         | 1. PD Academies   |
| 2. Math came easy                         | 2. Formative Assessment Lessons   |
| 3. Problems with core                     | 3. Studied/ selected/ trained   |
| 4. Intervention programming               | 4. Analyzed, vetted list  |
| 5. Reading vs. math: time and personnel   | 5. Core extension time, before/ after school  |
| 6. Number sense/ conceptual understanding | 6. Number Sense unit, bar model drawing, Rational Number project, Number Talks, partnered w/ university |





# **Policy Issues Related to Learning Disabilities & STEM Learning:**

## ***Policy & Parent Perspective***

**Lindsay Jones**

Vice President, Chief Policy & Advocacy Officer

# Meet Elijah

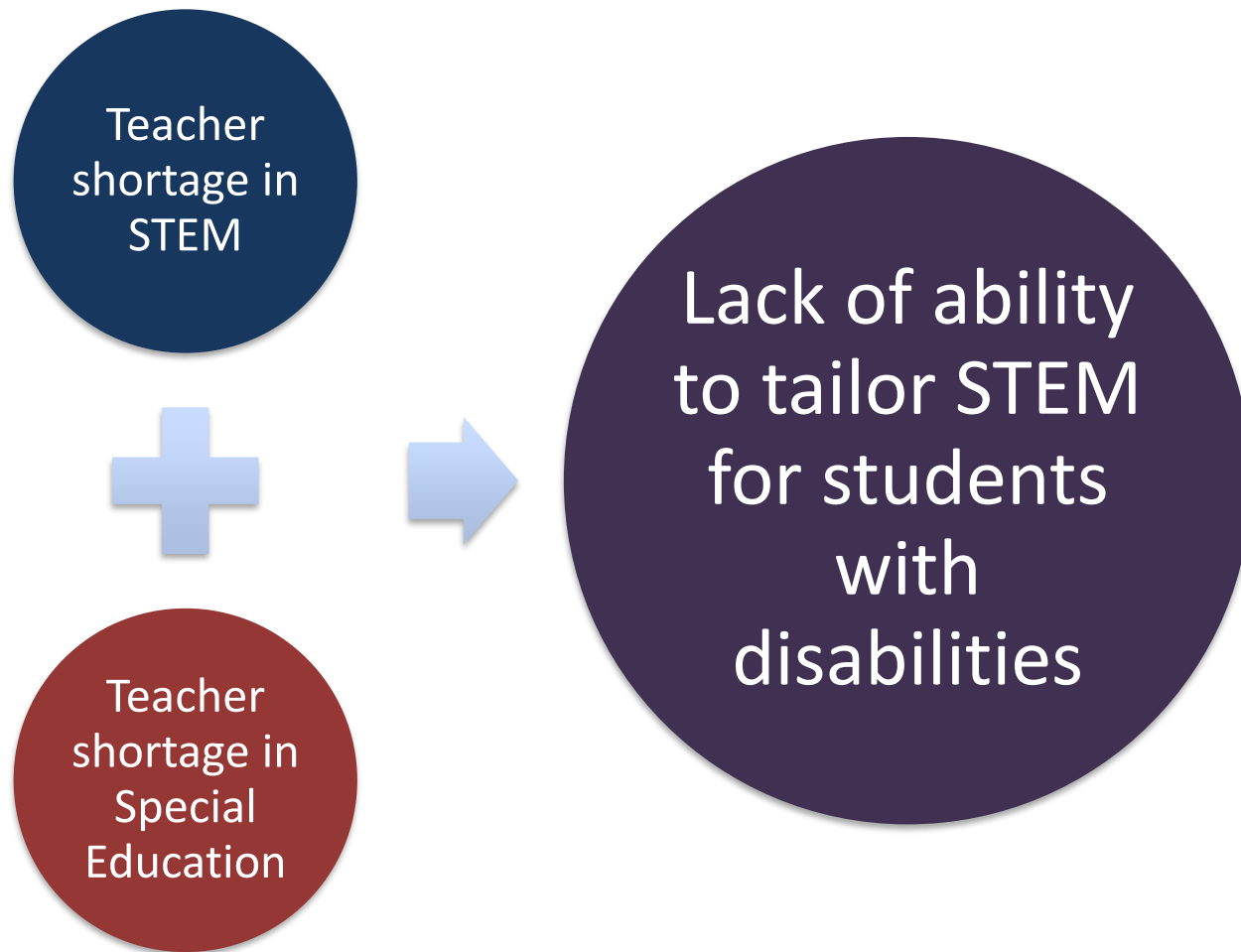
[Click here for video](#)

# Stigma as a Barrier to STEM

MYTH	FACT
Students with learning and attention issues are not able to be successful in STEM fields.	<p>Students with learning and attention issues may have something unique to offer the STEM field.</p> <p>Example: Some research shows that the dyslexic mind may have a bias to the visual periphery, making them more attuned to pattern recognition.</p>
Learning disabilities like dyslexia are <u>not</u> STEM issues.	<p>Communicating within the STEM fields requires core skills in reading and writing.</p> <p>Acknowledging and addressing the reading/writing abilities of individuals with STEM talent is crucial to receiving their contributions to the field.</p>

# Teacher Capacity as a Barrier to STEM

---



# Federal Role in STEM Initiatives

---

## Challenges

1. Trump Administration has not **prioritized or increased funding** for STEM education programs
2. Many existing STEM education programs have been **defunded** in recent years
3. No existing programs prioritize STEM education for **students with disabilities**

# Federal Role in STEM Initiatives

---

## Opportunities

- 1. States can leverage funding through ESSA:**
  - a. Grants for teacher professional development, certification and alternate routes, incentives for recruitment and retention, etc.
  - b. Use assessment funds to improve or expand science assessments
  - c. 21<sup>st</sup> century “well-rounded education” funding
- 2. Carl D. Perkins (CTE) is soon to be reauthorized**
- 3. Amplify and prioritize dissemination of research findings from NCER, NCSE, and NSF.**

# Thank you!

