

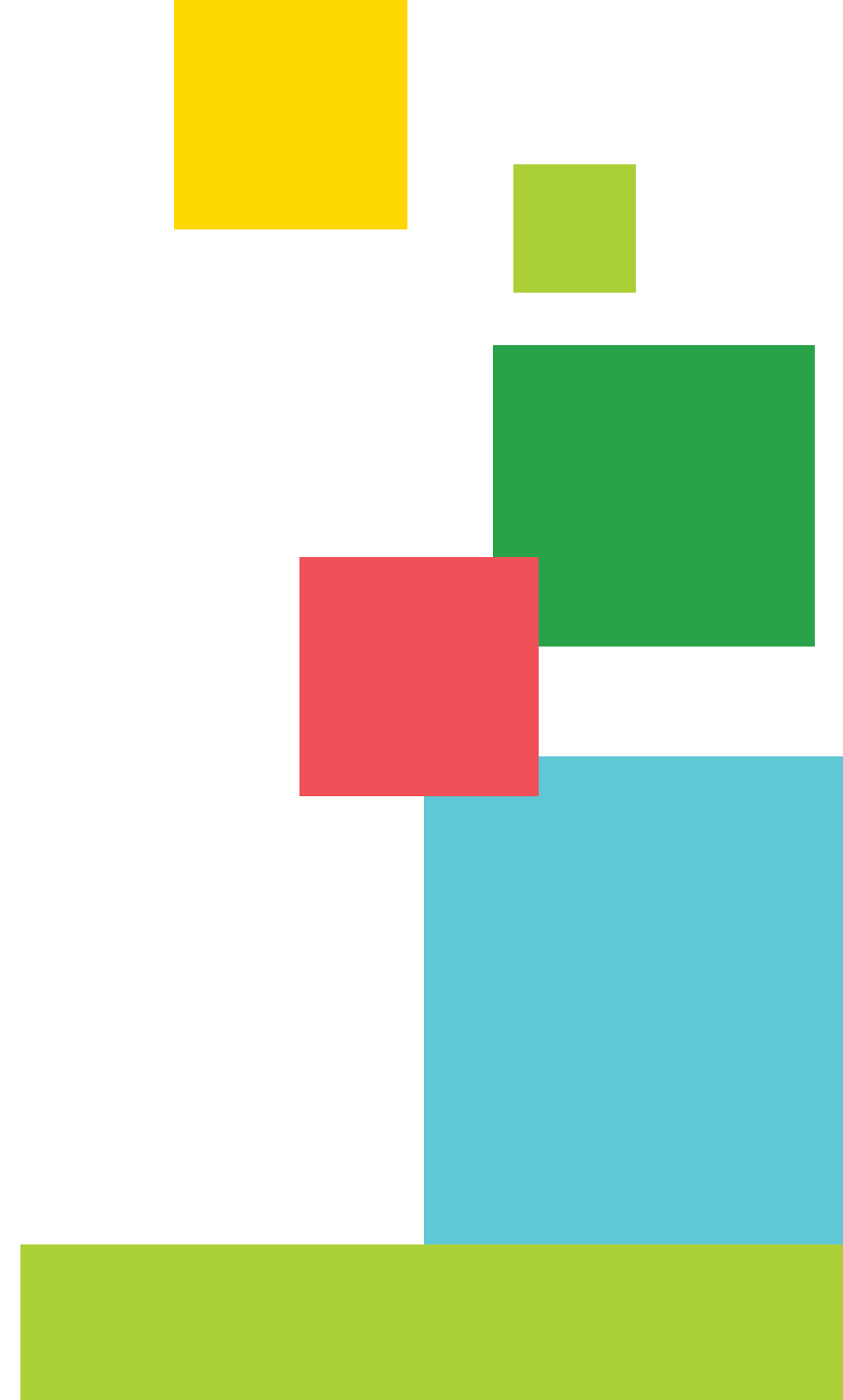


KENTUCKY CENTER
FOR MATHEMATICS

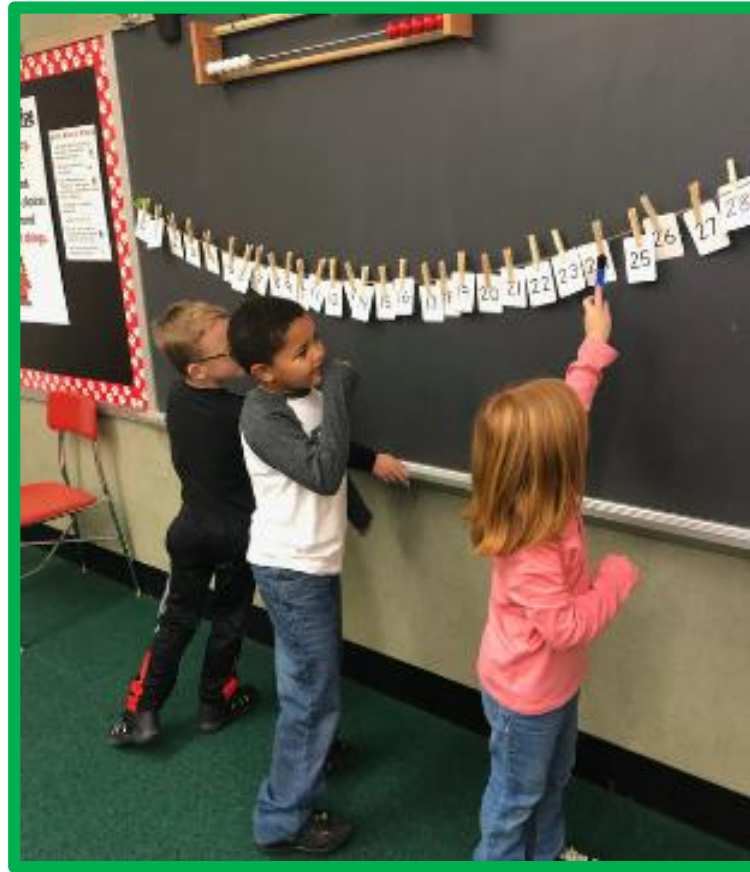
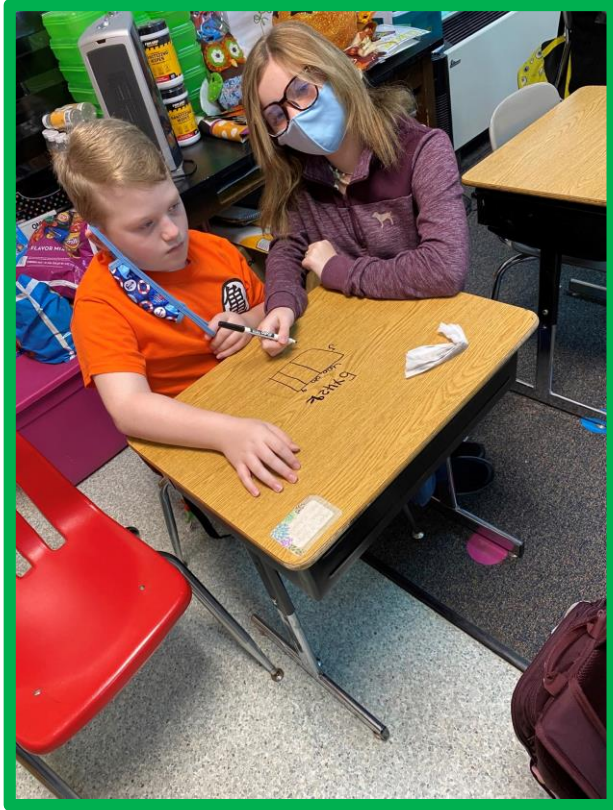
Collaborative Partner for Mathematics Excellence

Joint Interim Committee on Education

August 1, 2023



KCM for Student Success



KCM for Teacher Success



Your Kentucky Center for Mathematics



Legislated in 2006. Funded through Kentucky State General Funds and housed at NKU.

Statewide mathematics professional learning for teachers.

Making a difference for Kentucky Students!

KCM Legislation

- KRS 164.525- Clearinghouse for information on reliable, research-based methods
- Professional development for teachers that addresses:
 - Mathematics diagnostic assessment
 - Intervention programs
 - Coaching and mentoring programs
 - Other instructional strategies to address students' needs

KCM by the Numbers

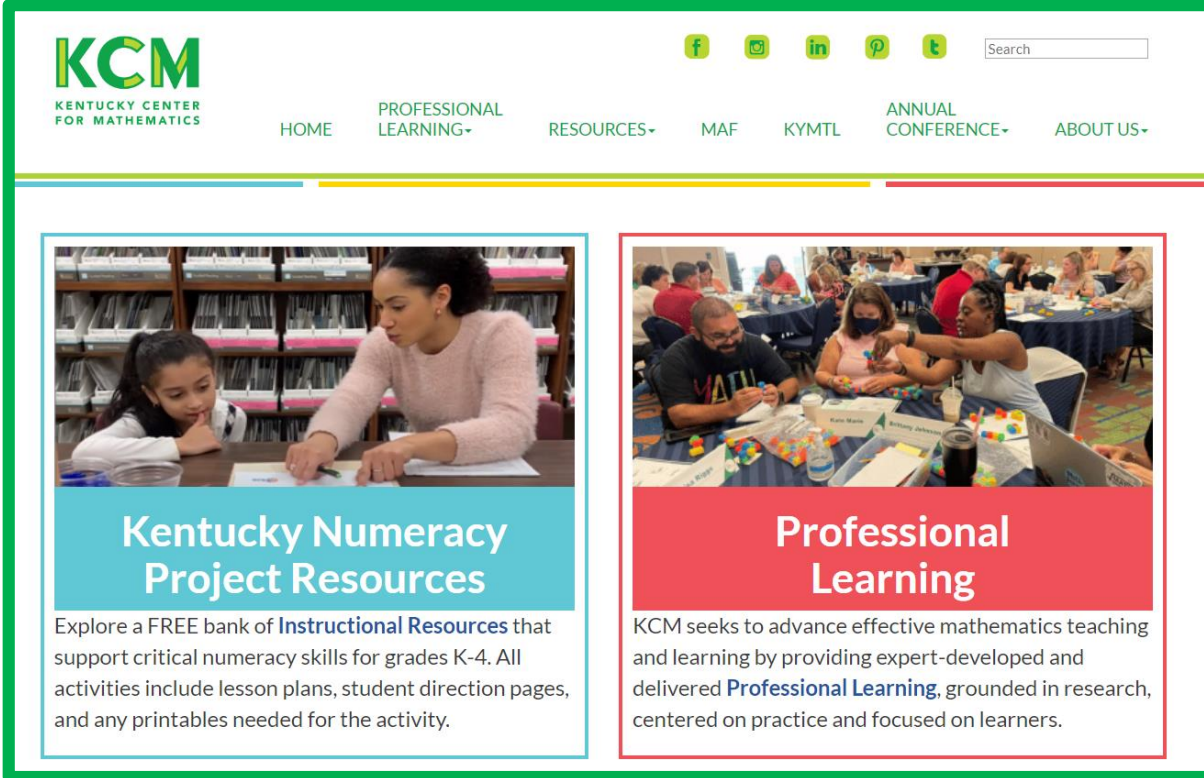
- Over the past 3 years
- 2199 teacher participants in KCM professional learning
- 2293 hours of professional learning
- In person, hybrid, and virtual sessions available
- Focus on High Quality Professional Learning as defined by KDE and research



Data from July 2020 – June 2023

KCM by the Numbers

- Over the past 3 years
- 263,112 users of the KCM website
- 1,491,805 page views
- All 50 states and 163 countries
- Especially popular are our **Family Math** and **Math Fact Fluency** resources



The screenshot shows the KCM website homepage. At the top left is the KCM logo (Kentucky Center for Mathematics). To the right are social media icons for Facebook, Instagram, LinkedIn, Pinterest, and Twitter, followed by a search bar. Below the logo is a navigation menu with links for HOME, PROFESSIONAL LEARNING, RESOURCES, MAF, KYMTL, ANNUAL CONFERENCE, and ABOUT US. The main content area features two cards. The left card is titled 'Kentucky Numeracy Project Resources' and includes a photo of a woman and a child working together. The right card is titled 'Professional Learning' and includes a photo of a group of people at a table. Below each photo is a brief description of the resources.

Kentucky Numeracy Project Resources
Explore a FREE bank of **Instructional Resources** that support critical numeracy skills for grades K-4. All activities include lesson plans, student direction pages, and any printables needed for the activity.

Professional Learning
KCM seeks to advance effective mathematics teaching and learning by providing expert-developed and delivered **Professional Learning**, grounded in research, centered on practice and focused on learners.

Data from July 2020 – June 2023

KCM by the Numbers

- 3 year total of 1375 educators attending the **2023 KCM Annual Conference** (1 in person was sold out, 2 virtual conferences)
- 15 national keynote speakers. 101 exciting sessions by KY educators. Teachers learning from teachers.
- Math teachers form community with other math teachers



Data from July 2020 – June 2023

KCM by the Numbers

- Teachers learning from teachers
- Best practices in mathematics
- Wonderful way to retain and grow our teachers



Data from July 2020 – June 2023

Resources for Educators

Statewide Courses

KCM is leader in mathematics teacher professional learning. Visit our website to see this year's courses.

Instructional Resources

Our KCM website has thousands of ready-to-use teacher resources including ready-to-print activities, virtual activities, on-demand webinars, family math resources, and assessment tools.

District Support

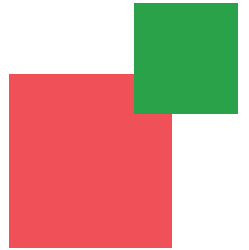
KCM creates and delivers district-level professional learning plans for Kentucky school districts.

Mathematics Achievement Fund

KCM partners with KDE to support the statewide Mathematics Achievement Fund. Mathematics coaching is the focus for this cycle of funding.

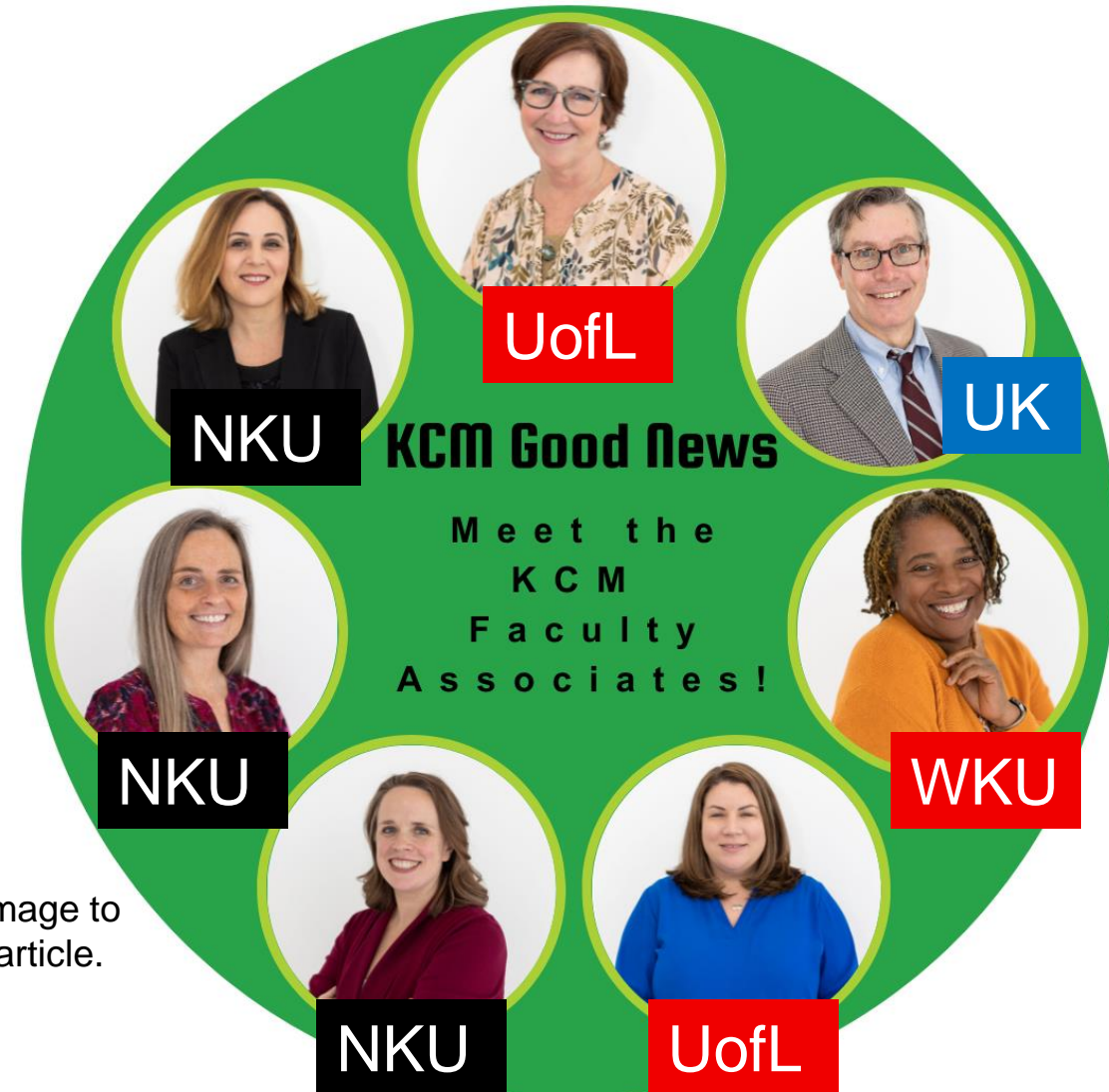
Visit us at www.kentuckymathematics.org

Collaborative Partners with IHE



Collaborative Partners with IHE

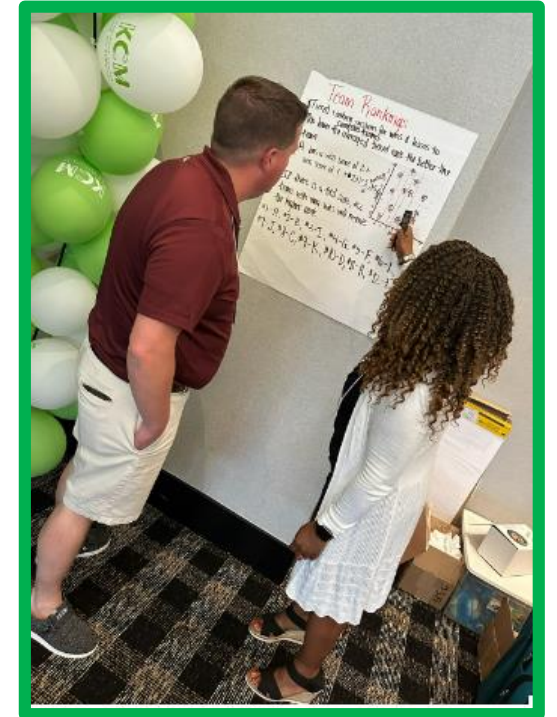
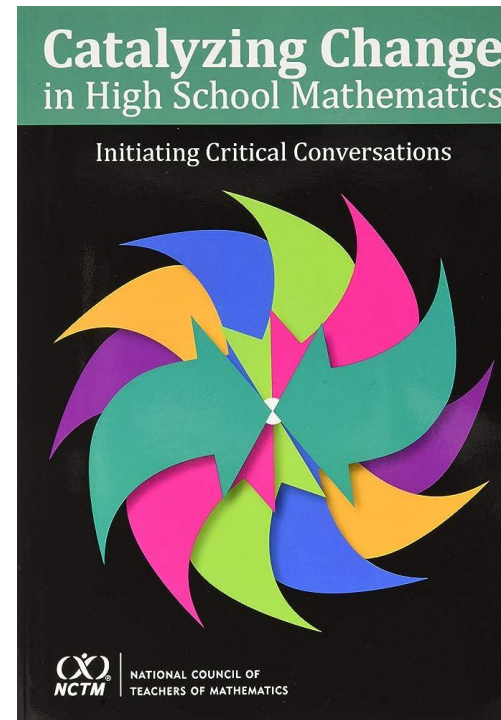
- 7 IHE Faculty Associates to support and guide our work
- Grounded in their research
- Stakeholders for mathematics education success
- Years of affiliation with KCM



Click on image to view full article.

Collaborative Partners with IHE

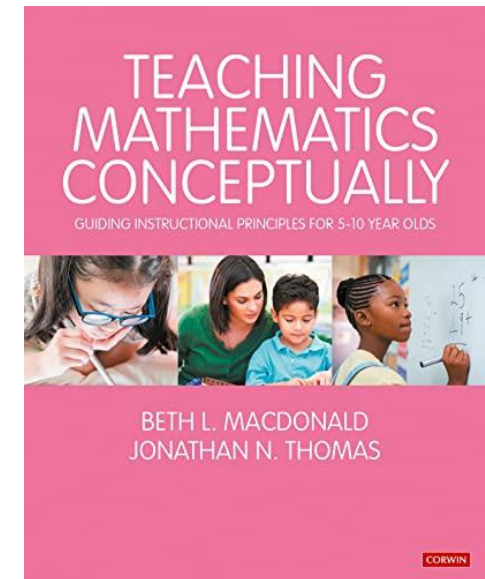
- **Kentucky Mathematics Teacher Leaders (KyMTL)** learn from Dr. Kanita DuCloux
- Mentoring classroom teachers to become leaders in their school, district, region, and state
- All student's to develop a positive math identity



Click on images above to view the KyMTL site

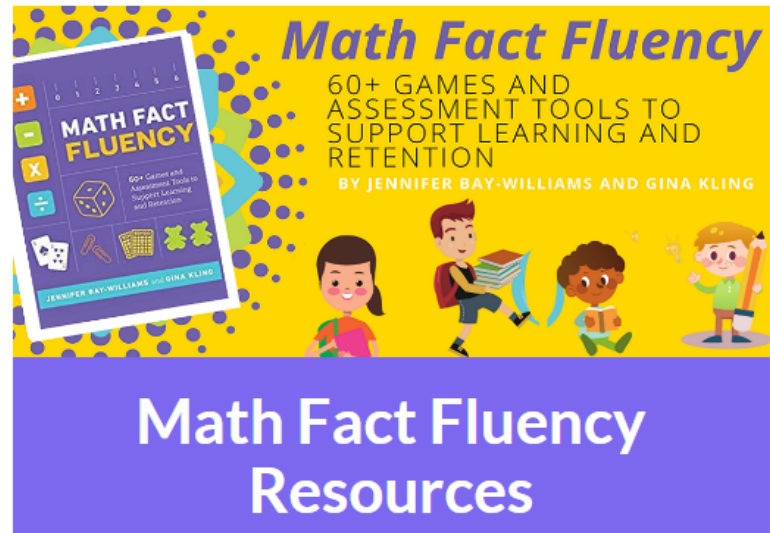
Collaborative Partners with IHE

- Mathematics intervention researcher, Dr. Jonathan Thomas
- Author of newest book on early numeracy
- Guiding principles of instruction in mathematics learning theory
- Wider links to agreed concepts of high-quality mathematics instruction



Collaborative Partners with IHE

- **Math Fact Fluency** companion website and course based on international expert, Dr. Jennifer Bay-Williams (UofL)
- Math fact fluency resources ready-to-use for teachers, homeschools and families
- Spanish version available



Math Fact Fluency
60+ GAMES AND ASSESSMENT TOOLS TO SUPPORT LEARNING AND RETENTION
BY JENNIFER BAY-WILLIAMS AND GINA KLING

Math Fact Fluency Resources

The KCM has created a companion website for *Math Fact Fluency: 60+ Games and Assessment Tools to Support Learning and Retention* by Jennifer Bay-Williams and Gina Kling. Access some of the games and assessment tools from the book at the [Math Fact Fluency Site](#). Games available in both English and Spanish.

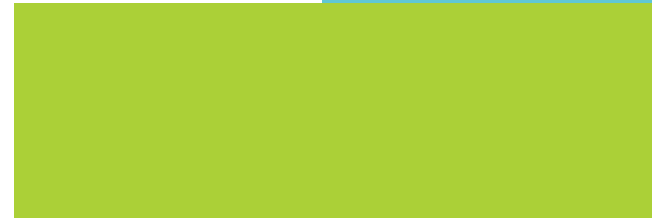
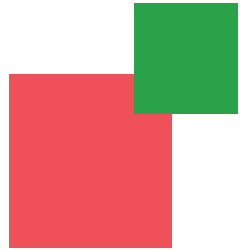
Click on image above to view the site

Collaborative Partners with IHE

“What I appreciate most about KCM is they can be counted on for strong leadership in mathematics education. Having been in other states, we are lucky to have KCM providing unwavering support for teachers and students. They really are an amazing asset to Kentucky.”

Dr. Kate Marin, University of Louisville

Collaborative Partners with KDE



Collaborative Partners with KDE

- Vibrant partner with the KDE Office of Teaching and Learning to facilitate the Mathematics Achievement Grant
- KCM regional consultants are coaching the school-level math coaches
- Compelling research on the effectiveness of math coaches
- Focus on Kentucky Academic Standards
- Year 1 of the new MAF funding cycle was 2022-2023

Collaborative Partners with KDE

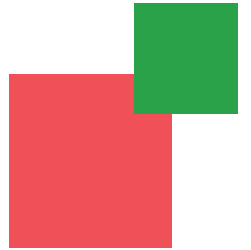
- Vibrant partner with Office of Continuous Improvement and Support, Office of Innovation
- KCM wrote the grant for Kentucky. KCM is the principal investigator. \$317,294 in grant money for KY.
- Aspiring to find solutions and alternatives in assessment. Micro credentialing parallels business and industry certifications.
- Focus is the high school Algebra 1 course

Collaborative Partners with KDE

“ There has been tremendous value in the support KCM has provided KDE in this partnership, including managing the logistics of the grant, participating in Kentucky United We Learn Council exhibitions, designing professional learning for educators and district leaders, and ongoing collaboration to ensure standards alignment with the Algebra 1 badges. The KCM team has been a strong and consistent partner with our team at KDE.”

Office of Continuous Improvement and Support, Division of Innovation

Collaborative Partners with Educational Cooperatives



Collaborative Partner with Regional Cooperatives

- Provide high-quality professional learning in partnership with regional cooperatives
- Standards and research-based mathematics instruction
- KCM facilitated courses for Kentucky Educational Development Corporation. Invested in their teachers.

Collaborative Partner with Regional Cooperatives

- Materials for students in the classroom
- Instructional strategies for positive student achievement
- Support for rural areas who need more materials

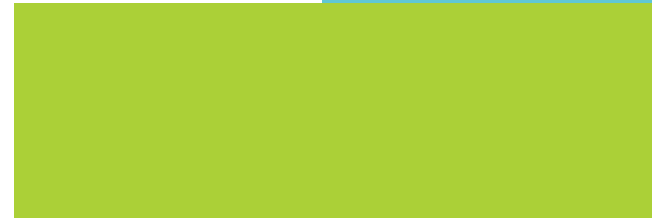
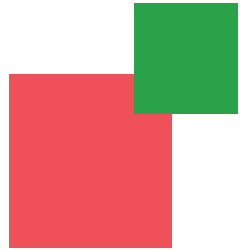


Collaborative Partner with Regional Cooperatives

“KCM’s trainers, materials, and resources helped me understand the foundations, progressions, and building blocks of math. As a former special education teacher and ELA teacher, I always said “I’m not a math person.” But I AM a math person. And so are you. The partnerships between KEDC and KCM made me feel empowered in this previously intimidating content area, but also equipped me with the knowledge to have important conversations with teachers and leaders in our region about the Kentucky Academic Standards for Math, the importance of all staff having a deep understanding of the KAS, and how we can strengthen Tier I instruction for ALL learners by providing high-quality professional learning and support!”

Abby Francis Laber, KEDC CRSSA Lead Coordinator

Collaborative Partners with Districts



Collaborative Partner with KY School Districts

- Customized mathematics professional learning for whole school districts
- Collaboration with superintendents and curriculum and instruction directors
- KCM invests in these districts with materials and facilitators at little or no cost

Collaborative Partner with KY School Districts

- Teacher professional learning on high quality K-5 mathematics instruction
- Early numeracy concepts, Kentucky Academic Standards, whole number operations, math fluency and fractions



Collaborative Partner with KY School Districts

- Administrator professional learning with focus on Kentucky Academic Standards
- Muhlenberg County Schools K-8 administrators and district personnel



Collaborative Partner with KY School Districts

- Math intervention professional learning
- Early numeracy, diagnostic assessment
- Courses and collegial teams to support teachers



Collaborative Partner with KY School Districts

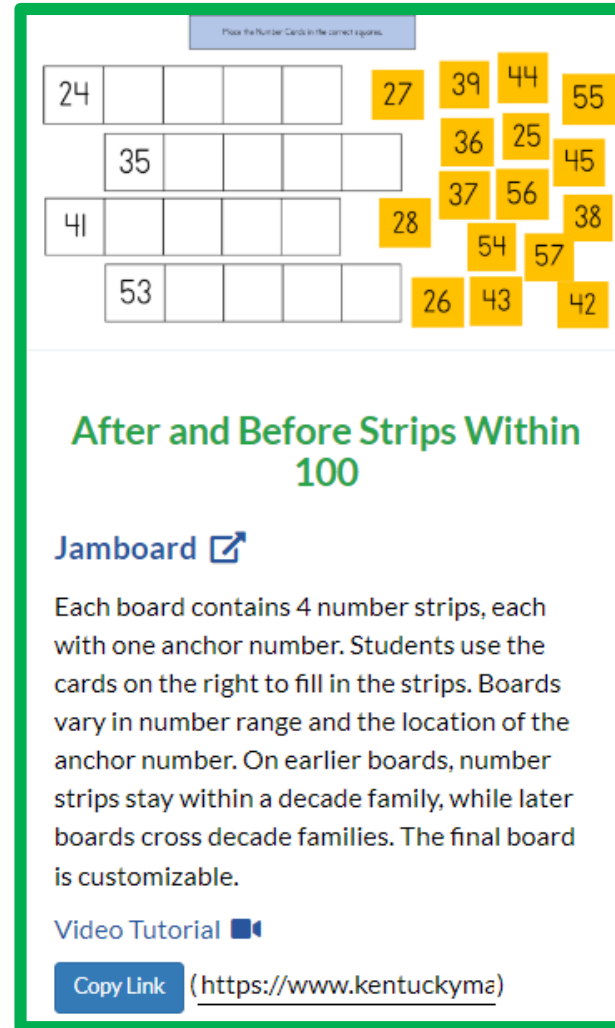
“The investment made by KCM in Pike County has yielded a substantial return on investment. Their support in aligning our math curriculum with the Kentucky Academic Standards has led to greater consistency and coherence in our instructional approaches. By ensuring that our teachers are equipped with the necessary resources, KCM has helped create a conducive environment for student success.”

Reed Adkins, Superintendent of Pike County Schools

Collaborative Partners with Educators

Collaborative Partner with Educators


- Digital resources designed with teachers in mind
- Teacher requested. KCM provided.
- Over 200 digital resources ready for teachers




Place the Number Cards in the correct squares.

24					27	39	44	55
	35					36	25	45
41					28	37	56	38
	53					54	57	
					26	43	42	

After and Before Strips Within 100

[Jamboard](#) 

Each board contains 4 number strips, each with one anchor number. Students use the cards on the right to fill in the strips. Boards vary in number range and the location of the anchor number. On earlier boards, number strips stay within a decade family, while later boards cross decade families. The final board is customizable.

[Video Tutorial](#) 

[Copy Link](https://www.kentuckyma) (https://www.kentuckyma)

Collaborative Partner with Educators

- Materials for classroom use
- Free courses to further teacher expertise in high quality mathematics instruction
- Model teacher co-teaching



Collaborative Partners with Communities

Collaborative Partner with Communities

- Focus and passion for Family/Community Math Nights
- Provide all materials
- Attend the Family Math Nights to interact with families and communities
- Helping parents to help schools
- Change to positive attitudes towards math
- More people we can engage in math is a WIN for Kentucky



Collaborative Partner with Communities



More Family Math Night photos

Collaborative Partner with Communities

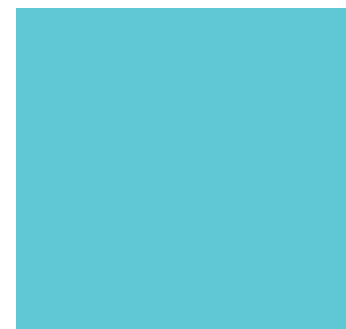
- Support KET with mathematics programming on early numeracy with a focus on empowering families
- Support KET with curriculum aimed at workforce development
- Active on in mathematics professional organizations- KCTM and KAMTE

Collaborative Partner with Communities

- Restocked all math tools for teachers at Martha J. Potter Elementary School in Letcher County.
- School flooded devastated all instructional resources.
- Amanda Holbrook, math teacher and KyMTL, knew she could count on KCM.

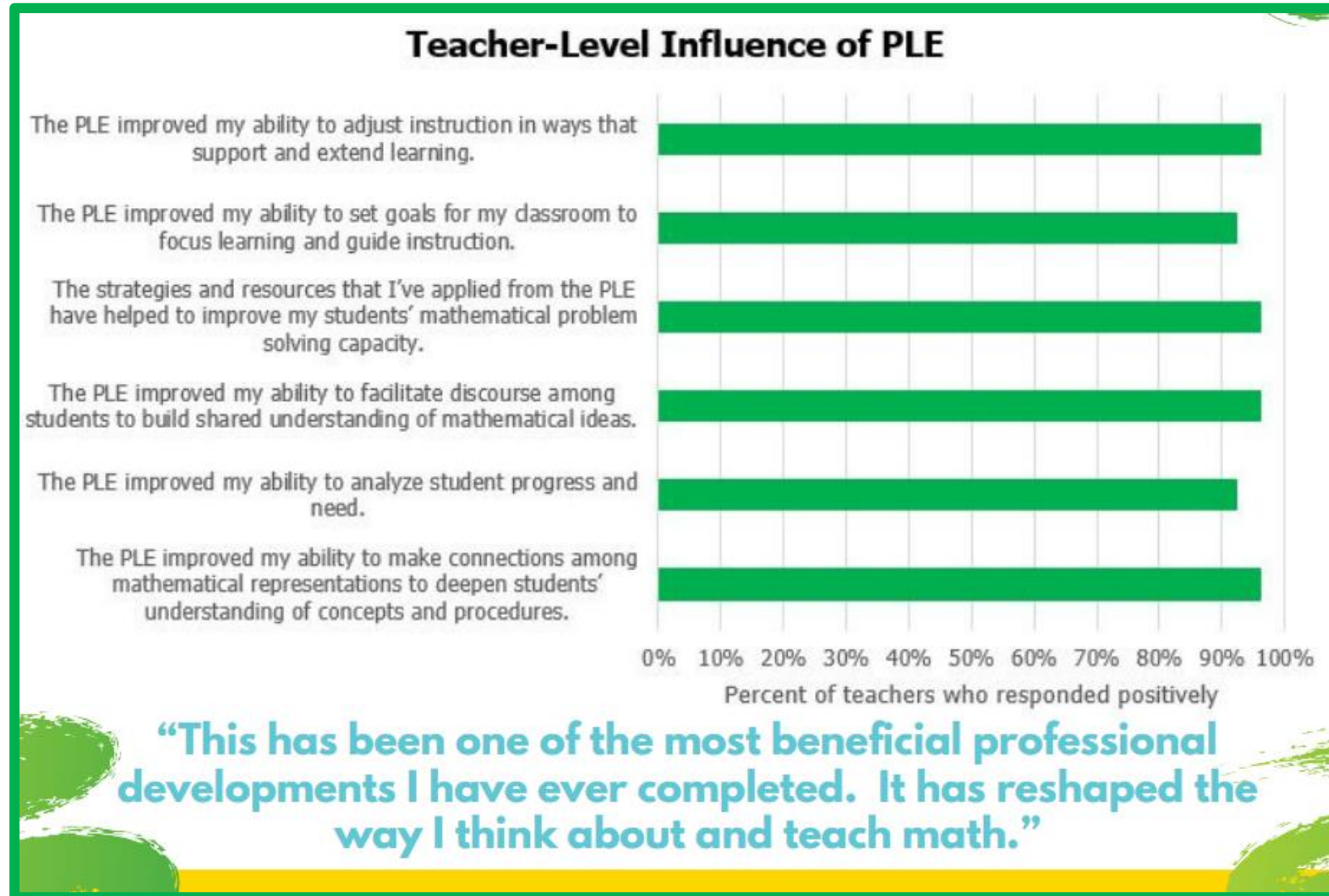


KCM Success



KCM Course Level Data

- Professional Learning Experience Surveys collected for each course we teach.
- Data analyzed by the Burkardt Center at NKU
- Outcomes published in our KCM Annual Report



KCM Course Level Data

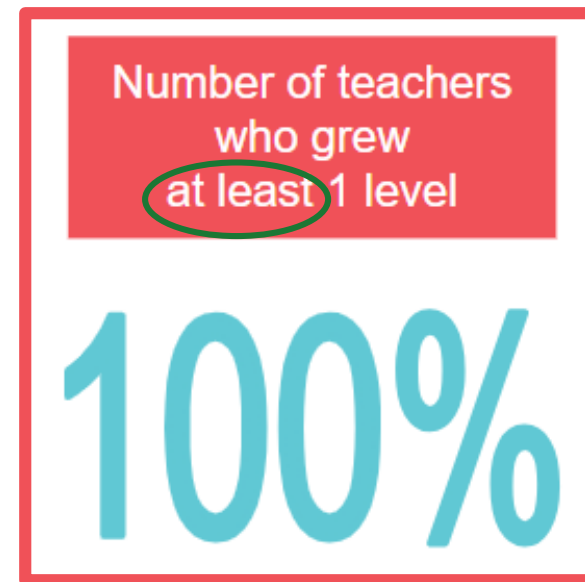
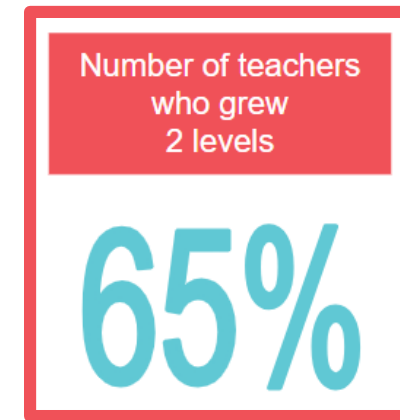
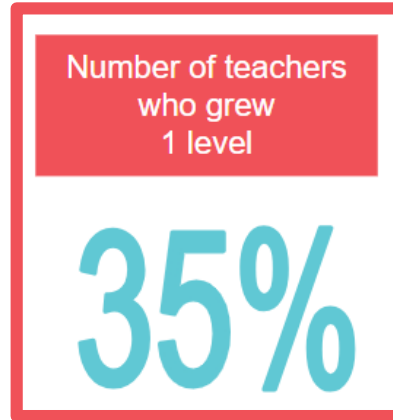
- Professional Learning Experience Surveys collected for each course we teach.
- Data analyzed by the Burkardt Center at NKU
- Outcomes published in our KCM Annual Report

Our KCM Courses Have a Positive Impact!

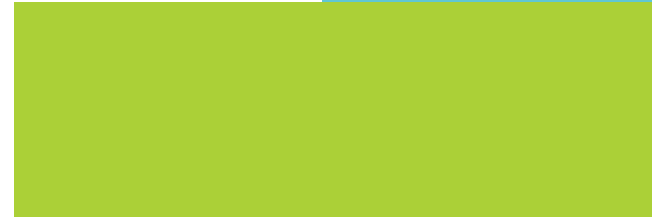
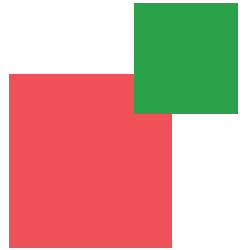


MAF Math Coaching Data

- Very promising math coaching data help retain teachers
- 13 math coaches
- 92 teachers participated
- 279 classroom observations using the Kentucky Mathematics Innovation Tool
- ~5,000 students impacted
- June 2023 data



KY Mathematics Data



KY Summative Assessment

Percentage of Students Performing at Proficient/Distinguished Levels Reading/Mathematics

Subject	Year	Elementary	Middle	High
Reading	2016	56%	55%	57% ¹
	2017	54%	57%	56% ¹
	2018	55%	60%	45% ²
	2019	55%	60%	45% ²
	2020	-----	No State Assessment	-----
	2021	-----	Limited Participation ³	-----
	2022	45%	44%	44%
Mathematics	2016	52%	47%	42% ¹
	2017	49%	47%	38% ¹
	2018	49%	47%	38% ²
	2019	49%	46%	35% ²
	2020	-----	No State Assessment	-----
	2021	-----	Limited Participation ³	-----
	2022	38%	37%	36%

¹ Students completed ACT QualityCore® End-of-Course (EOC) exams in Algebra II, English II, Biology and U.S. History.

² Reported Performance Level Percentages are for the ACT and Alternate K-PREP assessment.

³ Assessed Kentucky Academic Standards to meet federal testing requirements with limited participation and no accountability.

KY Summative Assessment

- Significant drop in proficiency in 2022
- Hypothesize causal factors
 - Virtual learning affected mathematics fact fluency
 - Limited instruction time with students
 - New standards adoption creates drop in proficiency
 - New Kentucky Summative Assessment increases cognitive complexity

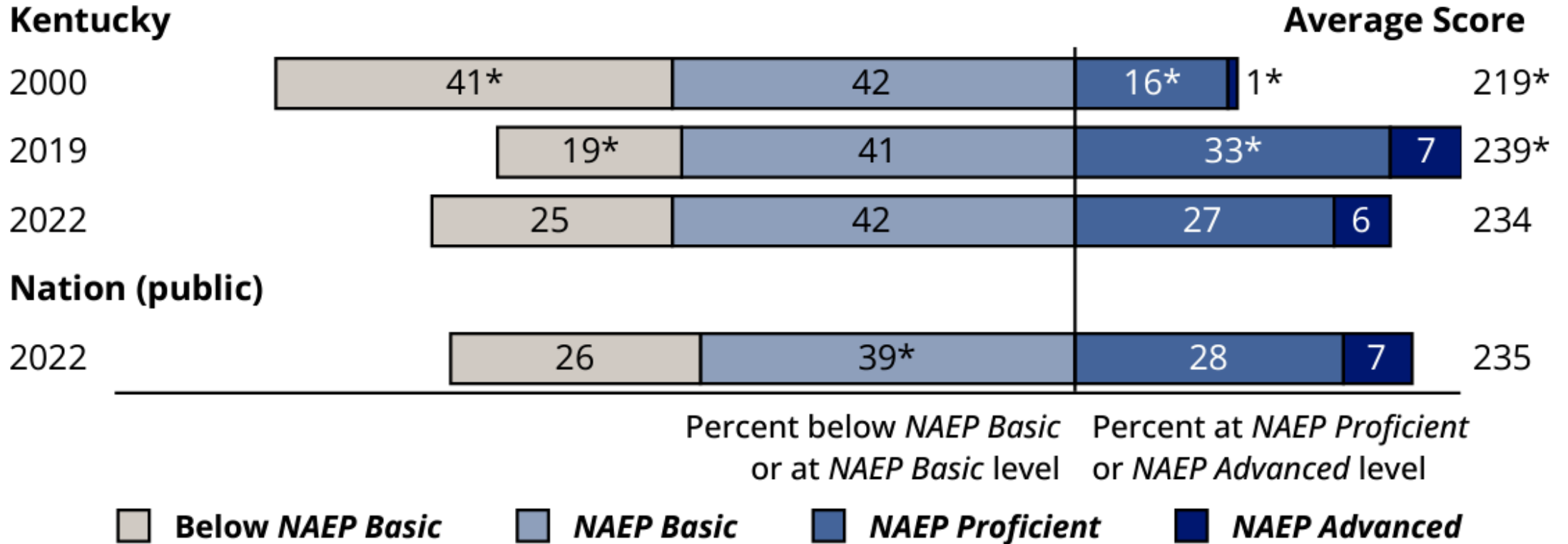
KCM Response to Data

- KCM response 2022-2023 school year and beyond
- Deep focus on Kentucky Academic Standards
- Deep focus on intervention
- Launched a middle grades numeracy course to support fraction and proportional reason gaps

2022 MATHEMATICS STATE SNAPSHOT REPORT

KENTUCKY ■ GRADE 4 ■ PUBLIC SCHOOLS

NAEP ACHIEVEMENT-LEVEL PERCENTAGES AND AVERAGE SCORE RESULTS



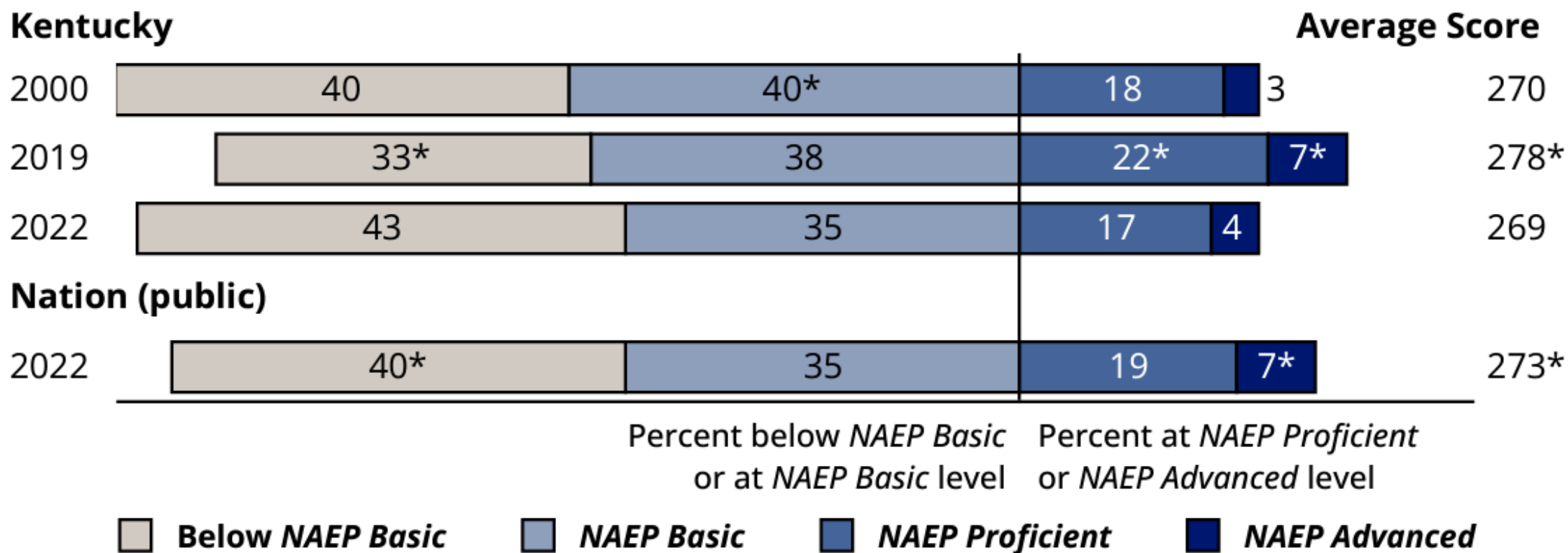
OVERALL RESULTS

- In 2022, the average score of fourth-grade students in Kentucky was 234. This was not significantly different from the average score of 235 for students in the nation.
- The average score for students in Kentucky in 2022 (234) was lower than their average score in 2019 (239) and was higher than their average score in 2000 (219).
- The percentage of students in Kentucky who performed at or above the *NAEP Proficient* level was 33 percent in 2022. This percentage was smaller than that in 2019 (40 percent) and was greater than that in 2000 (17 percent).
- The percentage of students in Kentucky who performed at or above the *NAEP Basic* level was 75 percent in 2022. This percentage was smaller than that in 2019 (81 percent) and was greater than that in 2000 (59 percent).

2022 MATHEMATICS STATE SNAPSHOT REPORT

KENTUCKY ■ GRADE 8 ■ PUBLIC SCHOOLS

NAEP ACHIEVEMENT-LEVEL PERCENTAGES AND AVERAGE SCORE RESULTS



OVERALL RESULTS

- In 2022, the average score of eighth-grade students in Kentucky was 269. This was lower than the average score of 273 for students in the nation.
- The average score for students in Kentucky in 2022 (269) was lower than their average score in 2019 (278) and was not significantly different from their average score in 2000 (270).
- The percentage of students in Kentucky who performed at or above the *NAEP Proficient* level was 21 percent in 2022. This percentage was smaller than that in 2019 (29 percent) and was not significantly different from that in 2000 (20 percent).
- The percentage of students in Kentucky who performed at or above the *NAEP Basic* level was 57 percent in 2022. This percentage was smaller than that in 2019 (67 percent) and was not significantly different from that in 2000 (60 percent).

KY NAEP Assessment

- Significant drop in proficiency in 2022
- To quote the NAEP officials
 - “It was systemic. It was comprehensive. It was double digits galore. It was everywhere. This is big stuff for America”
- Solutions
 - Intervention systems that are systemic and purposeful
 - Focus on instructional core

KCM Response to Data



- Deep focus on intervention
 - Revised Kentucky Numeracy Project materials to meet the need of teachers
 - Updated the Fluency Assessments to act a universal screeners
- Launched a middle grades numeracy course to support fraction and proportional reason gaps

KCM

Recommendations

KCM Recommendations

- Continue to focus on early numeracy skills
- Continue to focus on math fact fluency
- Support for continued implementation of rigorous Kentucky Academic Standards

KCM Recommendations

- Revive the Committee for Mathematics Achievement
- Continue to support math coaches in schools
- Support for school level administration in HQPL and HQIR for mathematics instruction

Kentucky Center for Mathematics

Making a difference for Kentucky
students and teachers

You Can Count On KCM

- Focused on supporting Kentucky educators
- Collaborative with all stakeholders
- Proven track record of producing positive outcomes
- National experts in mathematics education

Kentucky Center for Mathematics

How can KCM help legislators achieve their vision of math education?

We are here to serve you.



