



NATIONAL STUDENT  
SUPPORT ACCELERATOR

*equalizing access to quality tutoring*

NSSA TOOL

# PK – 8 Math Tutoring Resource Library

February 2023

[studentsupportaccelerator.org](https://studentsupportaccelerator.org)

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## About the Toolkit

Personalized approaches to math learning, such as [high-impact tutoring](#), provide significant benefits for students and accelerate student math learning ([Nickow, et. al., 2020](#)). The PK - 8 Math Tutoring Resource Library provides instructional strategies, culturally sustaining teaching, professional learning, and feedback and evaluation tools for tutors, teachers, tutor program managers and parents (caregivers) working in PK - 8 math tutoring programs.

The content and design of this Resource Library draws on insights from interviews with tutoring program directors, teachers, math directors, STEM directors and other math leaders, as well as from a literature review of peer-reviewed journal articles on math teaching, tutoring, and equitable teaching practices.

The goal of this guide is to provide resources to help tutoring programs provide effective math tutoring for students in need.

### Getting the Most from this Resource Library

The National Student Support Accelerator designed this Resource Library to support math tutoring across different learning contexts from a culturally sustaining, student-centered lens. It includes seven content modules, curated for four specific user groups as outlined below.

Content modules include guidance and materials for:

- **Grade Level Support** - support by grade level, divided into PK - 5th grade and 6th - 8th grade resources
- **Professional Learning** - role specific support and professional development, including initial tutoring training
- **Instructional Strategies** - support for effective math tutoring including assessment, differentiation, goal setting, and more
- **Culturally Sustaining Teaching** - support for incorporating culturally sustaining teaching strategies into math tutoring
- **Tutor Program Design** - support for understanding the elements of effective tutoring and designing an effective, high-impact tutoring program
- **Math Learning Support at Home** - support for parents and caregivers to facilitate their child's learning at home
- **More Resources** - support for understanding student math performance, example math tutoring programs, and books and articles to provide further context

User Groups include: Tutor, Teacher as Tutor, Tutor Program Manager and Parent (Caregiver).

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To quickly find resources based on your needs, use the search bar or review the [Resource Library Appendix](#).

*The tools, resources, webinars, articles, applications, and technology curated in this K - 8 Math Tutoring Resource Library are open-source tools for public use, vetted and field-tested by teachers, tutors, and tutoring program managers. The supplemental materials selected are either research-backed or from formal education organizations and entities, and align with the National Student Support Accelerator's [High Impact Tutoring Framework](#).*

## Tutor

The Tutor section of the PK - 8 Math Tutoring Resource Library contains modules on Grade Level Support, Professional Learning, Instructional Strategies, Culturally Sustaining Teaching, and More Resources. While the resources in this library can support classroom instruction, the intended audience is tutors.

The **Grade Level Support** module includes two grade bands - elementary (PK - 5) and middle (6 - 8). Each grade band contains math teaching and learning materials for tutors.

The **Professional Learning** module provides initial tutor training and ongoing professional learning guidance and materials that are current, relevant, and beneficial for a math tutor's continued improvement.

The **Instructional Strategies** module includes guidance on differentiated instruction, effective tutoring, and formative assessment for tutors to help students become independent and strategic math learners.

The **Culturally Sustaining Teaching** module includes resources that support culturally sustaining education in the math tutoring context.

The **More Resources** module includes sources for understanding student math performance in the US, examples of math tutoring programs, and books and articles to provide further context and support for math tutors.

Please see additional tools in the [Math Resource Appendix](#).

### Tutor: Culturally Sustaining Teaching

#### Culturally Sustaining Teaching

K-12 students come from a wide range of races, ethnicities, cultures and backgrounds. Effective tutors are prepared to teach and reach all learners. This section contains resources to support math tutors in culturally sustaining teaching.

##### Cultural Proficiency

Resources for building and supporting cultural awareness, sustaining culture, reducing and disrupting bias, and enhancing student identities in the educational process.

- [Checking for Bias](#)
- [Culturally Responsive-Sustaining Education](#)
- [Developing Your Cultural Awareness](#)

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- [Dismantling Mathematics Microaggressions](#)
  - [Including Voice in Education: Addressing Equity Through Student and Family Voice](#)

### **Culturally Responsive Teaching**

Mathematics education guides and resources intended to capitalize on the knowledge, culture, and ways of being of students.

- [Learner Variability Project in the Field: A Guide for Culturally Responsive Practice](#)
- [Teaching STEM in Ways that Respect and Build Upon Indigenous People’s Rights](#)

### **Equity**

Resources and a framework to support centering equity in mathematics teaching and learning.

- [Centering Equity During Pandemic Recovery](#)
- [Digital Equity Considerations: Advancing Digital Equity for All](#)
- [Dimensions of Equity](#)
- [Equitable Mathematics Instruction](#)

### **Learning for Justice**

Articles, guides, lessons, films, and webinars to support educators, leaders, and other stakeholders in educating youth and can be applied to math tutoring.

- [Learning for Justice Webinars](#)
- [Toolkit for “Mathematics in Context: The Pedagogy of Liberation”](#)

### **Social Justice Math**

Resources and examples of teaching societal injustices through mathematics.

- [Social Justice Math Problems grades 3-12](#)

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## **Equitable Math Teaching**

Effective math tutors intentionally examine their actions, mindsets, and values and consider how these factors impact their math teaching. Effective math tutors apply an equity lens to tutoring resources, strategies, and practices in order to create safe learning environments for all students. The resources in this section provide guidance in creating equity in math instruction.

### **Equitable Math Practices**

Resources for establishing an equitable math learning environment in which all students can experience high quality instruction.



- [4 Go-To Learner-Centered Routines to Bolster Math Discussions, In-Person and Online](#)
- [Agency and Voice: A Push for Greater Equity and What it Looks Like in Math](#)
- [Using 4 Learner-Centered Routines to Build Positive Math Identity in Equitable Classrooms](#)

## Math for Multilingual Learners

Culture and confidence as a math learner are two important aspects to consider when working with multilingual learners. The resources in this section provide tools for teaching mathematics to linguistically diverse learners.

### Middle Grades Multilingual Learners

Middle grades specific math teaching and learning strategies to support the success of multilingual learners.

- [Information for Mathematics Educators of Students Who are English Learners in Grades 6 - 8](#)
- [Middle Grades Mathematics Instruction for Multilingual Learners: Strategies for Success](#)

### Research

Podcast discussion on teaching mathematics to multilingual students and issues of immigration.

- [Research on Multilingual Learners in Mathematics Classrooms](#)

## Relationship-Building

This section contains resources for supporting relationship building between tutor, students, and caregivers. Building effective relationships establishes trust that leads to student willingness to engage in productive struggle that in turn leads to math learning development and confidence as a math learner.

Resources for building relationships with students and creating a sense of belonging in the learning environment.

- [Creating a Sense of Belonging: A Critical Need for Student Engagement and Success](#)
- [Critical Mentorship - A Practical Guide](#)
- [Empowering Students to Develop an Academic Identity](#)
- [Relationship Strategy for Addressing Challenging Behavior](#)
- [Tapping Into Compassion When Students Push Your Buttons](#)
- [Tutoring Toolkit: Relationship - Building](#)



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## Social Emotional Learning

Effective tutors incorporate social and emotional learning (SEL) into their tutoring practices. This section includes specific resources and guidance to support incorporating social emotional learning into math tutoring.

### **SEL Explained**

Learn what SEL is and why we need to consider SEL when creating equitable learning spaces during math tutoring.

- [Fundamentals of SEL](#)
- [What is Social Emotional Learning?](#)

### **The Impact of SEL on Math Learning**

Math learning provides many opportunities to develop SEL skills in students. The resources below provide ways math educators can incorporate SEL strategies into their tutoring practice.

- [The Possibilities of SEL + Mathematics](#)

## Tutor: Grade Level Support

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### PK - 5 Math Tutoring Resources for Tutors

The PK - 5 section provides tutors with resources related to PK - 5 grade level standards, math curriculum, and individual and small group intervention strategies. This section also includes PK - 5 level math apps, tips, and practices.

### **UnboundEd Grade Level Standards**

Math standards to help teachers and tutors provide students with an equitable math learning experience. The UnboundEd grade levels standards are equity-centered and focused on GLEAM (Grade-Level, Engaging, Affirming, Meaningful) instruction.

- [Counting and Cardinality: A Guide to Kindergarten Math Standards](#)
- [Operations and Algebraic Thinking: A Guide to Grade 1 Math Standards](#)
- [Operations and Algebraic Thinking: A Guide to Grade 2 Math Standards](#)
- [Operations and Algebraic Thinking: A Guide to Grade 3 Math Standards](#)
- [Operations and Algebraic Thinking: A Guide to Grade 4 Math Standards](#)
- [Number and Operations in Base Ten: A Guide to Grade 5 Math Standards](#)

### **Curriculum, Supplements, and Demonstration Lessons**



Games to build mathematical conceptual knowledge and understanding and build positive math culture.

- [Play. Create. Share.](#)

Demonstration lessons, mental math resources, supplements, programs, and videos to provide math teaching strategies and differentiation for students.

- [Assistments](#)
- [Number Talks](#)
- [Project STAIR](#) (videos)
- [Public Lessons](#)
- [Zearn Math](#)

### **Individual and Small Group Math Intervention**

An extension of the Pirate Math program with an individual and a small-group version of the equation word problem intervention.

- [Pirate Math Education Quest](#)

Downloadable and web-based apps (including fractions, geoboard, math clock, vocabulary cards, money pieces, number charts, number frames, number lines, base ten blocks, partial product finder, pattern shapes, and a white board).

- [Math Apps](#)

### **Student Engagement**

Tips and practices for keeping students engaged in the mathematics learning process.

- [10 Key Mathematics Practices for All Elementary School](#)
- [How to Keep Your Elementary Students Focused](#)

## **6 - 8 Grade Math Tutoring Resources for Tutors**

Students solidify their math identities about who they are as learners and doers of math during middle school. Tutors play a critical role in this formation period in helping students become critical thinkers and take ownership of their math learning.

The 6 - 8 section provides tutors with resources related to grade level standards, math curriculum, tools, and reviews of math games and apps.

### **UnboundEd Grade Level Standards**

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Math standards to help teachers and tutors provide students with an equitable math learning experience. The UnboundEd grade levels standards are equity-centered and focused on GLEAM (Grade-Level, Engaging, Affirming, Meaningful) instruction.

- [Ratios: A Guide to Grade 6 Math Standards](#)
- [Ratios: A Guide to Grade 7 Math Standards](#)
- [Geometry: A Guide to Grade 8 Math Standards](#)

### **Curriculum, Supplements, and Demonstration Lessons**

Curriculum, demonstration lessons, math learning resources, supplements, programs, and videos to provide math teaching strategies and differentiation for students.

- [Assistments](#)
- [Illustrative Mathematics Curriculum](#)
- [Middle School Courses: Geometry, Numbers & Algebra, Probability & Applications](#)
- [Number Talks](#)
- [Project STAIR](#) (videos)
- [Public Lessons](#)
- [Puzzles, Activities, and Lesson Plans](#)
- [Saga Math Tutoring Curriculum](#)
- [Zearn Math](#)

### **Math Apps and Games Review**

Reviews of free and paid math apps and games that provide individualized tutoring and supplemental mathematics learning support for students.

- [Common Sense Education: Best Adaptive Math Games and Sites](#)
- [Digital Math Games and Apps: What Works and What Doesn't?](#)

### **Student Engagement**

Research-backed tips and practices for keeping students engaged in the mathematics learning process.

- [10 Key Math Practices for All Middle and Secondary Schools](#)

### **Tools and Resources**

Graphing calculators, games, and manipulatives.

- [Desmos Math Tools](#)
- [The Mathematical Playground](#)

## Tutor: Instructional Strategies

### Differentiation in Math

Effective tutors are equipped to differentiate their instruction for each student regardless of student needs. Resources for addressing students with varying learning needs can provide strong support for tutors as they embark upon the journey of teaching and reaching all students.

Resources for math instruction differentiation.

- [Assisting Students Struggling in Math: Intervention in the Early Grades](#)
- [Intensive Intervention in Mathematics Course Content](#)

### Effective Tutoring and Teaching

Strong instructional strategies and techniques improve tutor effectiveness. Below are resources to support strong math instruction and student engagement.

#### Elementary Mathematics Teaching

Elementary math specific resources and strategies.

- [Concrete-Representational-Abstract: Instructional Sequence for Mathematics](#)
- [How to Use Real-World Problems to Teach Elementary School Math: 6 Tips](#)
- [Strategies to Increase All Students' Mathematics Learning and Achievement](#)
- [The Importance of Early Math](#)

#### Math Instruction

Instructional strategies for math tutoring.

- [Accessible Mathematics Experiences for Remote Learning](#)
- [Cross-age Math Tutoring of Kindergarten and First Grade Students by Middle School Tutors](#)
- [Error Analysis for Mathematics](#)
- [High Quality Mathematics Instruction](#)
- [Metacognitive Strategies](#)

#### Student Engagement

Strategies for engaging students during tutoring.

- [7 Ways to Increase Students' Attention Spans](#)

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## Teaching Resources

Math resources to support math tutoring.

- [Accountable Talk](#)
- [Saga Math Tutoring Curriculum](#)
- [Solving the Iceberg Problem- Learning Loss](#)
- [Word Problem Strategies](#)

## Formative Assessment

Formative assessment is a valuable resource to inform the tutor of the student's thinking, processing, and retention. Formative assessment can provide the "in the moment" thinking and learning of students, opposed to summative assessment, which typically follows the completion of a unit.

### Elementary Specific Formative Assessment

Elementary math specific resource to assess student thinking and understanding to inform math instructional and tutoring moves.

- [Formative Re-Engaging Lessons](#)

### General Formative Assessment

Resources to assess student thinking and understanding to inform math instructional and tutoring moves.

- [27 Easy Strategies Formative Assessment Strategies](#)
- [Feedback that Empowers Students](#)
- [Using Popular Apps for Formative Assessment](#)

## Goal Setting

Effective tutors work with students to establish goals for their learning during tutoring sessions. This process allows students and tutors to celebrate progress and gives students agency and a sense of autonomy over their learning.

Guides to establish and write goals for tutors and students.

- [How to write SMART Goals](#)
- [SMART Goal Setting with your Student](#)
- [Thinking Critically About Goal Setting](#)
- [Tutor-Student Goal Setting Conferences](#)

## Instructional Strategies for Beginning Math Tutors

This section includes tutoring strategies, self-paced training, lessons, apps, and other resources to assist new tutors in cultivating the skills necessary to become a high-impact tutor.

### Games, Apps, and Manipulatives

Interactive math tools, manipulatives, and programs to increase problem-solving and critical thinking skills.

- [Play. Create. Share.](#)
- [Math Apps](#)

### Goal Setting

Guide to establishing and writing goals.

- [How to write SMART Goals](#)

### Math Teaching Strategies and Lessons

Instructional strategies for math teaching.

- [Accountable Talk](#)
- [High Quality Mathematics Instruction](#)
- [Number Talks](#)
- [Project STAIR](#)
- [Public Lessons](#)
- [Word Problem Strategies](#)

### Student Engagement

Strategies for engaging students during tutoring.

- [7 Ways to Increase Students' Attention Spans](#)

## Tutor: Professional Learning

### Initial Training

The resources in this section include guidance, materials, and tools to support initial training and ongoing coaching for math tutors.

### High-Impact Tutoring

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The research behind and description of drivers of high-impact tutoring.

- [High-Impact Tutoring Standards](#)
- [High-Impact Tutoring: State of the Research and Priorities for Future Learning](#)
- [What is High Impact Tutoring?](#)

### **Initial Training and Coaching**

Guidance for initial tutor training and ongoing coaching.

- [In-Service Training & Support Guidance](#)
- [Metro Nashville Training](#)
- [Pre-Service Tutor Training Guidance](#)
- [Professional Learning Toolkit for Early Literacy Tutors](#) (can be adapted for math)
- [Saga Coach](#) (asynchronous tutor training modules)
- [Stanford Training Resources](#) (course required for students to tutor in local schools)
- [Tutor Feedback and Individualized Coaching](#)
- [Webinar: Tutor Training: Tutor Types & Training](#)
- [Webinar: Tutor Training: Effective Facilitation and Relationship Building](#)

## **Professional Learning Topics**

Effective tutors have strong initial training, ongoing coaching, and professional learning. The resources in this section include training materials and tools to support math tutor professional learning.

### **Approach to Teaching Math**

Video on bringing math to life and teaching it in a fun way.

- [Five Principles of Extraordinary Math Teaching](#)

### **Instructional Videos**

Instructional videos for a range of math topics including equations, geometry concepts, and more as well as teaching strategies including virtual assessments, grouping students, and more.

- [Project STAIR](#)

## Tutor: More Resources

### Example Math Tutoring Programs

These math tutoring programs provide a range of examples of how math tutoring can be implemented in different contexts at the school and district level and during out of school time.

#### District Tutoring Initiatives

These example school profiles provide insight to the ways in which districts are implementing tutoring.

- [Blueprint Schools Network](#)
- [Sample Tutoring Programs](#)

#### In-school tutoring

One of the most effective ways to deliver math tutoring is during the school day. These examples illustrate tutoring providers that implement their program during the school day.

- [Proven Tutoring](#)

#### Out-of-School Tutoring

Examples below illustrate how tutoring can be implemented in an after school context.

- [CityTutor DC](#)
- [Ready to Learn](#)

### PK - 8 Math Tutoring Articles

Bailey, D.H., Duncan, G. J., Murnane, R.J., & Au Yeung, N. (2021). [Achievement gaps in the wake of COVID-19](#). Educational Researcher, 2021, Vol. 50 (5), 266 - 275.

Bonner, M. P. (2021). [Practicing culturally responsive mathematics teaching](#). Mathematics Teacher: Learning & Teaching PK - 12. Vol. 114 (1), (6 - 15).

Chine, D. R. et al. (2022). [Educational equity through combined human-AI personalization: A Propensity Matching Evaluation](#). In: Rodrigo, M. M/, Matsuda, N., Cristea, A. I., Dimitrova, V. (Eds.) Artificial Intelligence in Education. AIED 2022. Lecture Notes in Computer Science, 13355. Springer, Cham.

Creider, S. C. (2020). [Student talk as a resource: Integrating conflicting agendas in math tutoring sessions](#). Linguistics and Education, 58, 2020 Journal homepage: [www.elsevier.com/locate/linged](http://www.elsevier.com/locate/linged) Science, 49, 709 - 735.



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- Curtis, K., Lindo, K., Jansen, A. (2021). [\*Discourse can create a learning culture\*](#). *Mathematics Teacher: Learning & Teaching PK - 12*, Vol. 114 (1), (55 - 62).
- DeLiema, D. (2017). [\*Co-constructed failure narratives in mathematics tutoring\*](#). *Instructional Science*, 45, 709 - 736.
- Dougherty, B., Pedrotty Bryant, D., Bryant, B. R., & Shin, M. (2017). [\*Helping students with mathematics difficulties understand ratios and proportions\*](#). *TEACHING Exceptional Children*, 49(2), 96–105.
- Durkin, K., Star, J. R., & Rittle-Johnson, B. (2017). [\*Using comparison of multiple strategies in the mathematics classroom: Lessons learned and next steps\*](#). *Mathematics Education*, 49, 585–597.
- Foegen, A., Stecker, P.M., Genareo, V. R., Lyons, R. Olson, J.R. Simpson, A., Romig, J. E., & Jones, R. (2016). [\*Using an online tool for learning about and implementing Algebra progress monitoring\*](#). *TEACHING Exceptional Children*, 49(2), 106 - 114.
- Haynes, K. B. & Brendle, J. (2019). [\*Cross-age math tutoring of kindergarten and first grade students by middle school tutors\*](#). *International Journal of Education in Mathematics, Science and Technology (IJEMST)*, 7(3), 238-250.
- Nickow, A., Oreopoulos, P., Quan, V. (2020). [\*The impressive effects of tutoring on Prek-12 learning: A systematic review and meta-analysis of the experimental evidence\*](#). NBER working paper No. 27476.
- Thomas, C. A. & Berry, R. Q. (2019). [\*A qualitative metasynthesis of culturally relevant pedagogy & culturally responsive teaching: Unpacking mathematics teaching practices\*](#). *Journal of Mathematics Education At Teachers College*, Spring 2019, Volume 10, Issue 1.
- Thurston, A., Roseth, C., Chang, T., Burns, V., Topping, K.J. (2020). [\*The influence of social relationships on outcomes in mathematics when using peer tutoring in elementary school\*](#). *International Journal of Educational Research Open*, Volume 1, 2020, 100004, ISSN 2666-3740.

## Teacher as Tutor

The Teacher as Tutor section of the PK - 8 Math Tutoring Resource Library contains modules on Grade Level Support, Professional Learning, Instructional Strategies, Culturally Sustaining Teaching, and More Resources. While the resources in this library can support classroom instruction, the intended audience is tutors.

The **Grade Level Support** module includes two grade bands - elementary (PK - 5) and middle (6 - 8). Each grade band contains math teaching and learning materials for teachers who tutor.

The **Professional Learning** module provides initial tutor training and ongoing professional learning guidance and materials that are current, relevant, and beneficial for a math tutor's continued improvement.

The Instructional Strategies module provides guidance on differentiated instruction, effective tutoring and more for tutors to help students become independent and strategic math learners.

The **Culturally Sustaining Teaching** module includes resources that support culturally sustaining education in the math tutoring context.

The **More Resources** module includes sources for understanding student math performance in the US, examples of math tutoring programs, and books and articles to provide further context and support for math tutors.

Please see additional tools in the [Math Resource Appendix](#).

### Teacher as Tutor: Culturally Sustaining Teaching

#### Culturally Sustaining Teaching

K-12 students come from a wide range of races, ethnicities, cultures and backgrounds. Effective tutors are prepared to teach and reach all learners. This section contains resources to support math tutors in culturally sustaining teaching.

##### Cultural Proficiency

Resources for building and supporting cultural awareness, sustaining culture, reducing and disrupting bias, and enhancing student identities in the educational process.

- [Anti-bias Toolkit](#)
- [Checking for Bias](#)
- [Culturally Responsive-Sustaining Education](#)

- 
- [Developing Your Cultural Awareness](#)
  - [Dismantling Mathematics Microaggressions](#)
  - [Including Voice in Education: Addressing Equity Through Student and Family Voice](#)
  - [Student + Teacher Collaborative on Race and Racism](#)

### **Culturally Responsive Teaching**

Mathematics education guides and resources intended to capitalize on the knowledge, culture, and ways of being of students.

- [Learner Variability Project in the Field: A Guide for Culturally Responsive Practice](#)
- [Teachers Empowered to Advance Change in Mathematics Project \(TEACH Math\)](#)
- [Teaching STEM in Ways that Respect and Build Upon Indigenous People’s Rights](#)

### **Equity**

Resources and a framework to support centering equity in mathematics teaching and learning.

- [Centering Equity During Pandemic Recovery](#)
- [Digital Equity Considerations: Advancing Digital Equity for All](#)
- [Dimensions of Equity](#)
- [Equitable Mathematics Instruction](#)
- [Racial Equity Tools](#)

### **Learning for Justice**

Articles, guides, lessons, films, and webinars to support educators, leaders, and other stakeholders in educating youth and can be applied to math tutoring.

- [Learning for Justice Film Kits](#)
- [Learning for Justice Self-Guided Learning](#)
- [Learning for Justice Webinars](#)
- [Toolkit for “Mathematics in Context: The Pedagogy of Liberation”](#)

### **Social Justice Math**

Resources and examples of teaching societal injustices through mathematics.

- [Math and Social Justice](#)
- [Social Justice and Equity Resources by Topic](#)
- [Social Justice Math Problems grades 3-12](#)

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## **Equitable Math Teaching**

Effective math tutors intentionally examine their actions, mindsets, and values and consider how these factors impact their math teaching. Effective math tutors apply an equity lens to

tutoring resources, strategies, and practices in order to create safe learning environments for all students. The resources in this section provide guidance in creating equity in math instruction.

### **Creating a Safe Learning Environment**

Guidance to create a safe learning space in which all students can experience an inclusive and culturally responsive environment.

- [A Pathway to Equitable Math Instruction](#)
- [Creating Equitable Classrooms Via Culturally Inclusive Mathematics Teaching](#)
- [Making Equity a Reality in Your Math Classroom](#)

### **Equitable Math Practices**

Resources for establishing an equitable math learning environment in which all students can experience high quality instruction.

- [4 Go-To Learner-Centered Routines to Bolster Math Discussions, In-Person and Online](#)
- [Agency and Voice: A Push for Greater Equity and What it Looks Like in Math](#)
- [Digital Equity Considerations: Advancing Digital Equity for All](#)
- [Equity in Mathematics Education Requires a Systemic Approach](#)
- [High Level Tasks in the Mathematics Classroom](#)
- [Using 4 Learner-Centered Routines to Build Positive Math Identity in Equitable Classrooms](#)

## **Math for Multilingual Learners**

Culture and confidence as a math learner are two important aspects to consider when working with multilingual learners. The resources in this section provide tools for teaching mathematics to linguistically diverse learners.

### **Middle Grades Multilingual Learners**

Middle grades specific math teaching and learning strategies for success of multilingual learners.

- [Information for Mathematics Educators of Students Who are English Learners in Grades 6 - 8](#)
- [Middle Grades Mathematics Instruction for Multilingual Learners: Strategies for Success](#)

### **Multilingual Learner Math Teaching Tools**

Tools and guides for facilitating the math teaching and learning of multilingual learners.

- [English Learner Success Forum Math Guidelines](#)

- 
- [Multilingual Learning Toolkit](#)
  - [Positioning Multilingual Learners for Success in Mathematics](#)

## Research

Podcast discussion on teaching mathematics to multilingual students and issues of immigration.

- [Research on Multilingual Learners in Mathematics Classrooms](#)

## Relationship-Building

This section contains resources for supporting relationship building between tutor, students, and caregivers. Building effective relationships establishes trust that leads to student willingness to engage in productive struggle that in turn leads to math learning development and confidence as a math learner.

Resources for building relationships with students and creating a sense of belonging in the learning environment.

- [Creating a Sense of Belonging: A Critical Need for Student Engagement and Success](#)
- [Critical Mentorship - A Practical Guide](#)
- [Relationship Strategy for Addressing Challenging Behavior](#)
- [Tapping Into Compassion When Students Push Your Buttons](#)
- [Tutoring Toolkit: Relationship - Building](#)

# Social Emotional Learning

Effective tutors incorporate social and emotional learning (SEL) into their tutoring practices. This section includes specific resources and guidance to support incorporating social emotional learning into math tutoring.

## SEL Explained

Learn what SEL is and why we need to consider SEL when creating equitable learning spaces during math tutoring.

- [Fundamentals of SEL](#)
- [What is Social Emotional Learning?](#)

## The Impact of SEL on Math Learning

Math learning provides many opportunities to develop SEL skills in students. The resources below provide ways math educators can incorporate SEL strategies into their tutoring practice.

- [SEL in the Classroom](#)
- [Social and Emotional Learning and Mathematics](#)
- [The Possibilities of SEL + Mathematics](#)

## Teacher as Tutor: Grade Level Support

### PK - 5 Math Tutoring Resources for Teacher as Tutor

The PK - 5 section provides tutors with resources related to PK - 5 grade level standards, math curriculum, and individual and small group intervention strategies. This section also includes PK - 5 level math apps, tips, and practices.

#### UnboundEd Grade Level Standards

Math standards to help teachers and tutors provide students with an equitable math learning experience. The UnboundEd grade levels standards are equity-centered and focused on GLEAM (Grade-Level, Engaging, Affirming, Meaningful) instruction.

- [Counting and Cardinality: A Guide to Kindergarten Math Standards](#)
- [Operations and Algebraic Thinking: A Guide to Grade 1 Math Standards](#)
- [Operations and Algebraic Thinking: A Guide to Grade 2 Math Standards](#)
- [Operations and Algebraic Thinking: A Guide to Grade 3 Math Standards](#)
- [Operations and Algebraic Thinking: A Guide to Grade 4 Math Standards](#)
- [Number and Operations in Base Ten: A Guide to Grade 5 Math Standards](#)

#### Curriculum, Supplements, and Demonstration Lessons

Games to build mathematical conceptual knowledge and understanding and build positive math culture.

- [Play. Create. Share.](#)

Scope and sequence for kindergarten through grade 5 with modifications for the virtual learning experience.

- [SFUSD Elementary Math Distance Learning Scope and Sequence](#)

Demonstration lessons, mental math resources, supplements, programs, and videos to provide math teaching strategies and differentiation for students.

- [Assistments](#)
- [Number Talks](#)
- [Pre-School Teachers can use a PBS Kids Transmedia Curriculum Supplement to Support Young Children’s Mathematics Learning: Results of a Randomized Controlled Trial](#)
- [Project STAIR \(videos\)](#)
- [Public Lessons](#)
- [Zearn Math](#)

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Tool to analyze the task level of K-5 mathematics tasks from low level tasks based on memorization to high level tasks that contain procedures with connections.

- [The Mathematics Task Analysis Guide](#)

### **Individual and Small Group Math Intervention**

An extension of the Pirate Math program with an individual and a small-group version of the equation word problem intervention.

- [Pirate Math Education Quest](#)

Downloadable and web-based apps (including fractions, geoboard, math clock, vocabulary cards, money pieces, number charts, number frames, number lines, base ten blocks, partial product finder, pattern shapes, and a white board).

- [Math Apps](#)

### **Mathematics Education Research**

Provides scientific evidence of effectiveness through research studies on programs, products, practices, and policies in the mathematics education field.

- [What Works Clearinghouse](#)

### **Student Engagement**

Tips and practices for keeping students engaged in the mathematics learning process.

- [10 Key Mathematics Practices for All Elementary School](#)
- [How to Keep Your Elementary Students Focused](#)

## **6 - 8 Grade Math Tutoring Resources for Teacher as Tutor**

Students solidify their math identities about who they are as learners and doers of math during middle school. Tutors play a critical role in this formation period in helping students become critical thinkers and take ownership of their math learning.

The 6 - 8 section provides tutors with resources related to grade level standards, math curriculum, tools, and reviews of math games and apps.

### **UnboundEd Grade Level Standards**

Math standards to help teachers and tutors provide students with an equitable math learning experience. The UnboundEd grade levels standards are equity-centered and focused on GLEAM (Grade-Level, Engaging, Affirming, Meaningful) instruction.

- [Ratios: A Guide to Grade 6 Math Standards](#)



- [Ratios: A Guide to Grade 7 Math Standards](#)
- [Geometry: A Guide to Grade 8 Math Standards](#)

### **Curriculum, Supplements, and Demonstration Lessons**

Curriculum, demonstration lessons, math learning resources, supplements, programs, and videos to provide math teaching strategies and differentiation for students.

- [Assistments](#)
- [Illustrative Mathematics Curriculum](#)
- [Middle School Courses: Geometry, Numbers & Algebra, Probability & Applications](#)
- [Number Talks](#)
- [Project STAIR \(videos\)](#)
- [Public Lessons](#)
- [Puzzles, Activities, and Lesson Plans](#)
- [Saga Math Tutoring Curriculum](#)
- [Zearn Math](#)

### **Math Apps and Games Review**

Reviews of free and paid math apps and games that provide individualized tutoring and supplemental mathematics learning support for students.

- [Common Sense Education: Best Adaptive Math Games and Sites](#)
- [Digital Math Games and Apps: What Works and What Doesn't?](#)

### **Mathematics Education Research**

Provides scientific evidence of effectiveness through research studies on programs, products, practices, and policies in the mathematics education field.

- [What Works Clearinghouse](#)

### **Student Engagement**

Research-backed tips and practices for keeping students engaged in the mathematics learning process.

- [10 Key Math Practices for All Middle and Secondary Schools](#)

### **Tools and Resources**

Graphing calculators, games, and manipulatives.

- [Desmos Math Tools](#)
- [The Mathematical Playground](#)



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## Teacher as Tutor: Instructional Strategies

### Differentiation in Math

Effective tutors are equipped to differentiate their instruction for each student regardless of student needs. Resources for addressing students with varying learning needs can provide strong support for tutors as they embark upon the journey of teaching and reaching all students.

Resources for math instruction differentiation.

- [Assisting Students Struggling in Math: Intervention in the Early Grades](#)
- [Intensive Intervention in Mathematics Course Content](#)
- [Interventions and Progress Monitoring Toolkit: Free MTSS/RTI Templates](#)

Effective Tutoring and Teaching

Strong instructional strategies and techniques improve tutor effectiveness. Below are resources to support strong math instruction and student engagement.

#### Elementary Mathematics Teaching

Elementary math specific resources and strategies.

- [Concrete-Representational-Abstract: Instructional Sequence for Mathematics](#)
- [How to Use Real-World Problems to Teach Elementary School Math: 6 Tips](#)
- [Strategies to Increase All Students' Mathematics Learning and Achievement](#)
- [The Importance of Early Math](#)

#### Math Instruction

Instructional strategies for math tutoring.

- [A Model for Improving Student Talk in the Math Classroom](#)
- [Accessible Mathematics Experiences for Remote Learning](#)
- [Building Classroom Climate for Mathematical Learning](#)
- [Cross-age Math Tutoring of Kindergarten and First Grade Students by Middle School Tutors](#)
- [Error Analysis for Mathematics](#)
- [High Quality Mathematics Instruction](#)
- [Metacognitive Strategies](#)
- [Standards for Mathematical Practice](#)
- [The Importance of Rich Tasks in K - 12 Mathematics](#)

#### Student Engagement



Strategies for engaging students during tutoring.

- [7 Ways to Increase Students' Attention Spans](#)

### Teaching Resources

Math resources and strategies to support math tutoring.

- [10 Strategies to Keep Students Engaged in the Classroom](#)
- [Accountable Talk](#)
- [Early Math Predicts Later Math: Implications for Interventions](#)
- [Free Teaching Resources: Fun Classroom Activities and Lesson Plan Ideas](#)
- [High Level Tasks in the Mathematics Classroom](#)
- [Saga Math Tutoring Curriculum](#)
- [Solving the Iceberg Problem- Learning Loss](#)
- [Supporting Students with Disabilities](#)
- [The Science of Math](#)
- [Using an Online Tool For learning About and Implementing Algebra Progress Monitoring](#)
- [Word Problem Strategies](#)

### Formative Assessment

Formative assessment is a valuable resource to inform the tutor of the student's thinking, processing, and retention. Formative assessment can provide the "in the moment" thinking and learning of students, opposed to summative assessment, which typically follows the completion of a unit.

#### Elementary Specific Formative Assessment

Elementary math specific resource to assess student thinking and understanding to inform math instructional and tutoring moves.

- [Formative assessment with interactive whiteboards: A one-year longitudinal study of primary students' mathematical performance](#)
- [Formative Re-Engaging Lessons](#)

#### General Formative Assessment

Resources to assess student thinking and understanding to inform math instructional and tutoring moves.

- [7 Smart Ways to do Formative Assessment](#)
- [27 Easy Strategies Formative Assessment Strategies](#)
- [Feedback that Empowers Students](#)
- [Using Frequent Feedback Cycles to Guide Student Work](#)
- [Using Popular Apps for Formative Assessment](#)

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## Goal Setting

Effective tutors work with students to establish goals for their learning during tutoring sessions. This process allows students and tutors to celebrate progress and gives students agency and a sense of autonomy over their learning.

Guides to establish and write goals for tutors and students.

- [How to write SMART Goals](#)
- [SMART Goal Setting with your Student](#)
- [Thinking Critically About Goal Setting](#)
- [Tutor-Student Goal Setting Conferences](#)

## Teacher as Tutor: Professional Learning

### Initial Training and Coaching

The resources in this section include guidance, materials, and tools to support initial training and ongoing coaching for math tutors.

#### High-Impact Tutoring

The research behind and description of drivers of high-impact tutoring.

- [High-Impact Tutoring Standards](#)
- [High-Impact Tutoring: State of the Research and Priorities for Future Learning](#)
- [What is High Impact Tutoring?](#)

#### Initial Training and Coaching

Guidance for initial tutor training and ongoing coaching.

- [In-Service Training & Support Guidance](#)
- [Metro Nashville Training](#)
- [Pre-Service Tutor Training Guidance](#)
- [Professional Learning Toolkit for Early Literacy Tutors](#) (can be adapted for math)
- [Saga Coach](#) (asynchronous tutor training modules)
- [Stanford Training Resources](#) (course required for students to tutor in local schools)
- [Tutor Feedback and Individualized Coaching](#)
- [Webinar: Tutor Training: Tutor Types & Training](#)
- [Webinar: Tutor Training: Effective Facilitation and Relationship Building](#)

## Professional Learning Topics

Effective tutors have strong initial training and ongoing coaching and professional learning. The resources in this section include training materials and tools to support math tutor professional learning.

### Approach to Teaching Math

Video on bringing math to life and teaching it in a fun way.

- [Five Principles of Extraordinary Math Teaching](#)

### Equity in Math Instruction

Resources for understanding and achieving equity in the math learning environment.

- [Equity in Mathematics Education Requires a Systemic Approach](#)
- [Making Equity a Reality in Your Math Classroom](#)
- [UnboundEd Professional Learning Modules for Teachers](#)

### Instructional Videos

Instructional videos for a range of math topics including equations, geometry concepts, and more as well as teaching strategies including virtual assessments, grouping students, and more.

- [Project STAIR](#)

### Mathematical Practice Standards

Information on the Common Core Standards and connections to the Mathematical Practice Standards.

- [Implementing the Mathematical Practice Standards](#)

### MTSS/RTI

Website describing the relationship between RTI and MTSS, and instruction, assessment, and decision making at Tiers 1, 2, and 3.

- [MTSS/RTI: Mathematics](#)

## Teacher as Tutor: More Resources

### Example Math Tutoring Programs

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These math tutoring programs provide a range of examples of how math tutoring can be implemented in different contexts at the school and district level and during out of school time.

### **District Tutoring Initiatives**

These example school profiles provide insight to the ways in which districts are implementing tutoring.

- [Blueprint Schools Network](#)
- [Sample Tutoring Programs](#)

### **In-school tutoring**

One of the most effective ways to deliver math tutoring is during the school day. These examples illustrate tutoring providers that implement their program during the school day.

- [Proven Tutoring](#)

### **Out-of-School Tutoring**

Examples below illustrate how tutoring can be implemented in an after school context.

- [CityTutor DC](#)
- [Ready to Learn](#)

### **Student Math Performance Landscape**

The math landscape information provides pertinent and valuable information on student performance in reading and mathematics in the United States.

### **Data on Student Performance**

Understanding national math learning performance and trends is an important tool for math educators when planning instruction, assessing student learning, and analyzing student growth in math learning.

- [Dynamic Learning Maps by State](#)
- [National Assessment of Educational Progress 2022](#)

### **Improvement Strategies**

A study providing strategies to support middle grades math learning for struggling students.

- [National Survey on Supporting Struggling Mathematics Learners](#)

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## PK - 8 Math Tutoring Articles



- Bailey, D.H., Duncan, G. J., Murnane, R.J., & Au Yeung, N. (2021). [\*Achievement gaps in the wake of COVID-19\*](#). *Educational Researcher*, 2021, Vol. 50 (5), 266 - 275.
- Bonner, M. P. (2021). [\*Practicing culturally responsive mathematics teaching\*](#). *Mathematics Teacher: Learning & Teaching PK - 12*. Vol. 114 (1), (6 - 15).
- Chine, D. R. et al. (2022). [\*Educational equity through combined human-AI personalization: A Propensity Matching Evaluation\*](#). In: Rodrigo, M. M/, Matsuda, N., Cristea, A. I., Dimitrova, V. (Eds.) *Artificial Intelligence in Education. AIED 2022. Lecture Notes in Computer Science*, 13355. Springer, Cham.
- Creider, S. C. (2020). [\*Student talk as a resource: Integrating conflicting agendas in math tutoring sessions\*](#). *Linguistics and Education*, 58, 2020 Journal homepage: [www.elsevier.com/locate/linged](http://www.elsevier.com/locate/linged) *Science*, 49, 709 - 735.
- Curtis, K., Lindo, K., Jansen, A. (2021). [\*Discourse can create a learning culture\*](#). *Mathematics Teacher: Learning & Teaching PK - 12*, Vol. 114 (1), (55 - 62).
- DeLiema, D. (2017). [\*Co-constructed failure narratives in mathematics tutoring. Instructional Science\*](#), 45, 709 - 736.
- Dougherty, B., Pedrotty Bryant, D., Bryant, B. R., & Shin, M. (2017). [\*Helping students with mathematics difficulties understand ratios and proportions\*](#). *TEACHING Exceptional Children*, 49(2), 96–105.
- Durkin, K., Star, J. R., & Rittle-Johnson, B. (2017). [\*Using comparison of multiple strategies in the mathematics classroom: Lessons learned and next steps\*](#). *Mathematics Education*, 49, 585–597.
- Foegen, A., Stecker, P.M., Genareo, V. R., Lyons, R. Olson, J.R. Simpson, A., Romig, J. E., & Jones, R. (2016). [\*Using an online tool for learning about and implementing Algebra progress monitoring\*](#). *TEACHING Exceptional Children*, 49(2), 106 - 114.
- Haynes, K. B. & Brendle, J. (2019). [\*Cross-age math tutoring of kindergarten and first grade students by middle school tutors\*](#). *International Journal of Education in Mathematics, Science and Technology (IJEMST)*, 7(3), 238-250.
- Nickow, A., Oreopoulos, P., Quan, V. (2020). [\*The impressive effects of tutoring on Prek-12 learning: A systematic review and meta-analysis of the experimental evidence\*](#). NBER working paper No. 27476.
- Thomas, C. A. & Berry, R. Q. (2019). [\*A qualitative metasynthesis of culturally relevant pedagogy & culturally responsive teaching: Unpacking mathematics teaching practices\*](#). *Journal of Mathematics Education At Teachers College*, Spring 2019, Volume 10, Issue 1.

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Thurston, A., Roseth, C., Chang, T., Burns, V., Topping, K.J. (2020). [\*The influence of social relationships on outcomes in mathematics when using peer tutoring in elementary school.\*](#) International Journal of Educational Research Open, Volume 1, 2020, 100004, ISSN 2666-3740.

## PK - 8 Math Tutoring Books

Boaler, J. (2022). [\*Mathematical mindsets: Unleashing students' potential through creative mathematics inspiring and innovative teaching.\*](#) Jossey-Bass: Hoboken, NJ.

Django, P., Alim, H. S. (2017). [\*Culturally Sustaining Pedagogies: Teaching and Learning for Justice in a Changing World.\*](#) Teachers College Press: New York, NY.

Gay, G. (2018). [\*Culturally responsive teaching: Theory, Research and Practice.\*](#) Teachers College Press: New York, NY.

Goffney, I., Gutierrez, R. (2018). [\*Rehumanizing Mathematics for Black, Indigenous, and Latinx Students.\*](#) National Council of Teachers of Mathematics, Inc.

Hammond, Z. L. (2015). [\*Culturally Responsive Teaching and the Brain.\*](#) Corwin Press.

Ladson-Billings, G. (2009). [\*The dream-keepers: Successful teachers of African American children.\*](#) Jossey-Bass: San Francisco, CA.

Leonard, J. & Martin, D. B. (Eds.) (2013). [\*The brilliance of black children in mathematics: Beyond the numbers and towards new discourse.\*](#) Information Age Publishing, Inc.: Charlotte, NC.

Martin, D. B., & Mayfield-Ingram, K. (2013, March 15). [\*The Impact of Identity in K-8 Mathematics Learning and Teaching: Rethinking Equity-based Practices.\*](#) National Council of Teachers of Mathematics, Inc.

Milner, H. R. (2020). [\*Start where you are, but don't stay there: Understanding diversity, opportunity gaps, and teaching in today's classrooms.\*](#) Harvard Education Press: Cambridge, MA.

Seda, P., & Brown, K. (2021). [\*Choosing to See: A Framework for Equity in the Math Classroom.\*](#) Dave Burgess Consulting, Inc.: San Diego, CA.

## Tutor Program Manager

The Tutor Program Manager section of this Resource Library contains modules on Tutor Program Design, Grade Level Support, Professional Learning, Instructional Strategies, Culturally Sustaining Teaching, and More Resources.

The tutor program manager role is inclusive of all roles within a tutoring organization that are responsible for providing training and ongoing professional learning to individuals that serve as tutors. Within this section, tutor program managers will find resources to incorporate in tutor initial training, developmental coaching and formal observations.

Effective tutor program managers focus on cultivating both technical competence and relationship-building skills to create conditions for effective math tutoring that lead to positive student learning outcomes.

The [Tutor Program Design](#) module provides guidance for understanding the elements of effective tutoring and designing an effective, high-impact tutoring program.

The [Grade Level Support](#) module includes two grade bands - elementary (PK - 5) and middle (6 - 8). Each grade band contains math teaching and learning materials for tutor program managers.

The [Professional Learning](#) module provides guidance for tutor program managers to develop and implement initial tutor training, ongoing professional learning and effective feedback and evaluation systems.

The [Instructional Strategies](#) module provides guidance on differentiated instruction, effective tutoring and more for tutor program managers to support tutors to become high-impact tutors.

The [Culturally Sustaining Teaching](#) module includes resources that support tutoring program managers to integrate culturally sustaining teaching methods into their math tutoring program.

The [More Resources](#) module includes sources for understanding student math performance in the US, examples of math tutoring programs, and books and articles to provide further context and support for tutor program managers.

Please see additional tools in the [Math Resource Appendix](#).

### Tutor Program Manager: Culturally Sustaining Teaching

#### Culturally Sustaining Teaching

K-12 students come from a wide range of races, ethnicities, cultures and backgrounds. Effective tutors are prepared to teach and reach all learners. This section contains resources to support math tutors in culturally sustaining teaching.



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## Cultural Proficiency

Resources for building and supporting cultural awareness, sustaining culture, reducing and disrupting bias, and enhancing student identities in the educational process.

- [Anti-bias Toolkit](#)
- [Checking for Bias](#)
- [Culturally Responsive-Sustaining Education](#)
- [Developing Your Cultural Awareness](#)
- [Dismantling Mathematics Microaggressions](#)
- [Including Voice in Education: Addressing Equity Through Student and Family Voice](#)
- [Student + Teacher Collaborative on Race and Racism](#)

## Culturally Responsive Teaching

Mathematics education guides and resources intended to capitalize on the knowledge, culture, and ways of being of students.

- [Learner Variability Project in the Field: A Guide for Culturally Responsive Practice](#)
- [Teachers Empowered to Advance Change in Mathematics Project \(TEACH Math\)](#)
- [Teaching STEM in Ways that Respect and Build Upon Indigenous People’s Rights](#)

## Equity

Resources and a framework to support centering equity in mathematics teaching and learning.

- [Centering Equity During Pandemic Recovery](#)
- [Digital Equity Considerations: Advancing Digital Equity for All](#)
- [Dimensions of Equity](#)
- [Equitable Mathematics Instruction](#)
- [Racial Equity Tools](#)

## Learning for Justice

Articles, guides, lessons, films, and webinars to support educators, leaders, and other stakeholders in educating youth and can be applied to math tutoring.

- [Learning for Justice Film Kits](#)
- [Learning for Justice Self-Guided Learning](#)
- [Learning for Justice Webinars](#)
- [Toolkit for “Mathematics in Context: The Pedagogy of Liberation”](#)

## Social Justice Math

Resources and examples of teaching societal injustices through mathematics.

- [Math and Social Justice](#)



- [Social Justice and Equity Resources by Topic](#)
- [Social Justice Math Problems grades 3-12](#)

## Equitable Math Teaching

Effective math tutors intentionally examine their actions, mindsets, and values and consider how these factors impact their math teaching. Effective math tutors apply an equity lens to tutoring resources, strategies, and practices in order to create safe learning environments for all students. The resources in this section provide guidance in creating equity in math instruction.

### Creating a Safe Learning Environment

Guidance to create a safe learning space in which all students can experience an inclusive and culturally responsive environment.

- [A Pathway to Equitable Math Instruction](#)
- [Creating Equitable Classrooms Via Culturally Inclusive Mathematics Teaching](#)
- [Making Equity a Reality in Your Math Classroom](#)

### Equitable Math Practices

Resources for establishing an equitable math learning environment in which all students can experience high quality instruction.

- [4 Go-To Learner-Centered Routines to Bolster Math Discussions, In-Person and Online](#)
- [Agency and Voice: A Push for Greater Equity and What it Looks Like in Math](#)
- [Digital Equity Considerations: Advancing Digital Equity for All](#)
- [Equity in Mathematics Education Requires a Systemic Approach](#)
- [High Level Tasks in the Mathematics Classroom](#)
- [Using 4 Learner-Centered Routines to Build Positive Math Identity in Equitable Classrooms](#)

## Math for Multilingual Learners

Culture and confidence as a math learner are two important aspects to consider when working with multilingual learners. The resources in this section provide tools for teaching mathematics to linguistically diverse learners.

Culture and confidence as a math learner are two important aspects to consider when working with multilingual learners. The resources in this section provide tools for teaching mathematics to linguistically diverse learners.

### Middle Grades Multilingual Learners

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Middle grades specific math teaching and learning strategies for success of multilingual learners.

- [Information for Mathematics Educators of Students Who are English Learners in Grades 6 - 8](#)
- [Middle Grades Mathematics Instruction for Multilingual Learners: Strategies for Success](#)

### **Multilingual Learner Math Teaching Tools**

Tools and guides for facilitating the math teaching and learning of multilingual learners.

- [English Learner Success Forum Math Guidelines](#)
- [Multilingual Learning Toolkit](#)
- [Positioning Multilingual Learners for Success in Mathematics](#)

### **Research**

Podcast discussion on teaching mathematics to multilingual students and issues of immigration.

- [Research on Multilingual Learners in Mathematics Classrooms](#)

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## Relationship-Building

This section contains resources for supporting relationship building between tutor, students, and caregivers. Building effective relationships establishes trust that leads to student willingness to engage in productive struggle that in turn leads to math learning development and confidence as a math learner.

Resources for building relationships with students and creating a sense of belonging in the learning environment.

- [Creating a Sense of Belonging: A Critical Need for Student Engagement and Success](#)
- [Critical Mentorship - A Practical Guide](#)
- [Empowering Students to Develop an Academic Identity](#)
- [Relationship Strategy for Addressing Challenging Behavior](#)
- [Tapping Into Compassion When Students Push Your Buttons](#)
- [Tutoring Toolkit: Relationship - Building](#)

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## Social Emotional Learning

Effective tutors incorporate social and emotional learning (SEL) into their tutoring practices. This section includes specific resources and guidance to support incorporating social emotional learning into math tutoring.

### **SEL Explained**

Learn what SEL is and why we need to consider SEL when creating equitable learning spaces during math tutoring.

- [Fundamentals of SEL](#)

### **The Impact of SEL on Math Learning**

Math learning provides many opportunities to develop SEL skills in students. The resources below provide ways math educators can incorporate SEL strategies into their tutoring practice.

- [SEL in the Classroom](#)
- [Social and Emotional Learning and Mathematics](#)
- [The Possibilities of SEL + Mathematics](#)

## **Tutor Program Managers: Grade Level Support**

### **PK - 5 Math Tutoring Resources for Tutor Program Managers**

The PK - 5 section provides tutors with resources related to PK - 5 grade level standards, math curriculum, and individual and small group intervention strategies. This section also includes PK - 5 level math apps, tips, and practices.

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- [Operations and Algebraic Thinking: A Guide to Grade 4 Math Standards](#)
- [Number and Operations in Base Ten: A Guide to Grade 5 Math Standards](#)

#### **Curriculum, Supplements, and Demonstration Lessons**

Games to build mathematical conceptual knowledge and understanding and build positive math culture.

- [Play. Create. Share.](#)

Scope and sequence for kindergarten through grade 5 with modifications for the virtual learning experience.

- 
- [SFUSD Elementary Math Distance Learning Scope and Sequence](#)

Demonstration lessons, mental math resources, supplements, programs, and videos to provide math teaching strategies and differentiation for students.

- [Assistments](#)
- [Number Talks](#)
- [Pre-School Teachers can use a PBS Kids Transmedia Curriculum Supplement to Support Young Children’s Mathematics Learning: Results of a Randomized Controlled Trial](#)
- [Project STAIR](#) (videos)
- [Public Lessons](#)
- [Zearn Math](#)

Tool to analyze the task level of K-5 mathematics tasks from low level tasks based on memorization to high level tasks that contain procedures with connections.

- [The Mathematics Task Analysis Guide](#)

### **Individual and Small Group Math Intervention**

An extension of the Pirate Math program with an individual and a small-group version of the equation word problem intervention.

- [Pirate Math Education Quest](#)

Downloadable and web-based apps (including fractions, geoboard, math clock, vocabulary cards, money pieces, number charts, number frames, number lines, base ten blocks, partial product finder, pattern shapes, and a white board).

- [Math Apps](#)

### **Mathematics Education Research**

Provides scientific evidence of effectiveness through research studies on programs, products, practices, and policies in the mathematics education field.

- [What Works Clearinghouse](#)

### **Student Engagement**

Tips and practices for keeping students engaged in the mathematics learning process.

- [10 Key Mathematics Practices for All Elementary School](#)
- [How to Keep Your Elementary Students Focused](#)

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## **6 - 8 Grade Math Tutoring Resources for Tutor Program Managers**

Students solidify their math identities about who they are as learners and doers of math during middle school. Tutors play a critical role in this formation period in helping students become critical thinkers and take ownership of their math learning.

The 6 - 8 section provides tutors with resources related to grade level standards, math curriculum, tools, and reviews of math games and apps.

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Math standards to help teachers and tutors provide students with an equitable math learning experience. The UnboundEd grade levels standards are equity-centered and focused on GLEAM (Grade-Level, Engaging, Affirming, Meaningful) instruction.

- [Ratios: A Guide to Grade 6 Math Standards](#)
- [Ratios: A Guide to Grade 7 Math Standards](#)
- [Geometry: A Guide to Grade 8 Math Standards](#)

### **Curriculum, Supplements, and Demonstration Lessons**

Curriculum, demonstration lessons, math learning resources, supplements, programs, and videos to provide math teaching strategies and differentiation for students.

- [Assistments](#)
- [Illustrative Mathematics Curriculum](#)
- [Middle School Courses: Geometry, Numbers & Algebra, Probability & Applications](#)
- [Number Talks](#)
- [Project STAIR](#) (videos)
- [Public Lessons](#)
- [Puzzles, Activities, and Lesson Plans](#)
- [Saga Math Tutoring Curriculum](#)
- [Zearn Math](#)

### **Math Apps and Games Review**

Reviews of free and paid math apps and games that provide individualized tutoring and supplemental mathematics learning support for students.

- [Common Sense Education: Best Adaptive Math Games and Sites](#)
- [Digital Math Games and Apps: What Works and What Doesn't?](#)

### **Mathematics Education Research**

Provides scientific evidence of effectiveness through research studies on programs, products, practices, and policies in the mathematics education field.

- [What Works Clearinghouse](#)

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## Parent (Caregiver) Resources

The National Council of Teachers of Mathematics (NCTM) recommended supplemental math resources to be shared with parents to challenge students at home.

- [Figure This! Teacher Corner](#)

## Student Engagement

Research-backed tips and practices for keeping students engaged in the mathematics learning process.

- [10 Key Math Practices for All Middle and Secondary Schools](#)

## Tools and Resources

Graphing calculators, games, and manipulatives.

- [Desmos Math Tools](#)
- [The Mathematical Playground](#)

# Tutor Program Manager: Instructional Strategies

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## Differentiation in Math

Effective tutors are equipped to differentiate their instruction for each student regardless of student needs. Resources for addressing students with varying learning needs can provide strong support for tutors as they embark upon the journey of teaching and reaching all students.

Resources for math instruction differentiation.

- [Assisting Students Struggling in Math: Intervention in the Early Grades](#)
- [Intensive Intervention in Mathematics Course Content](#)
- [Interventions and Progress Monitoring Toolkit: Free MTSS/RTI Templates](#)

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## Effective Tutoring and Teaching

Strong instructional strategies and techniques improve tutor effectiveness. Below are resources to support strong math instruction and student engagement.

### Elementary Mathematics Teaching

Elementary math specific resources and strategies.



- [Concrete-Representational-Abstract: Instructional Sequence for Mathematics](#)
- [How to Use Real-World Problems to Teach Elementary School Math: 6 Tips](#)
- [Strategies to Increase All Students' Mathematics Learning and Achievement](#)
- [The Importance of Early Math](#)

## Math Instruction

Instructional strategies for math tutoring.

- [A Model for Improving Student Talk in the Math Classroom](#)
- [Accessible Mathematics Experiences for Remote Learning](#)
- [Building Classroom Climate for Mathematical Learning](#)
- [Cross-age Math Tutoring of Kindergarten and First Grade Students by Middle School Tutors](#)
- [Error Analysis for Mathematics](#)
- [High Quality Mathematics Instruction](#)
- [Metacognitive Strategies](#)
- [Standards for Mathematical Practice](#)
- [The Importance of Rich Tasks in K - 12 Mathematics](#)

## Student Engagement

Strategies for engaging students during tutoring.

- [7 Ways to Increase Students' Attention Spans](#)

## Teaching Resources

Math resources and strategies to support math tutoring.

- [Accountable Talk](#)
- [Early Math Predicts Later Math: Implications for Interventions](#)
- [Free Teaching Resources: Fun Classroom Activities and Lesson Plan Ideas](#)
- [High Level Tasks in the Mathematics Classroom](#)
- [Saga Math Tutoring Curriculum](#)
- [Solving the Iceberg Problem- Learning Loss](#)
- [The Science of Math](#)
- [Word Problem Strategies](#)

## Formative Assessment

Formative assessment is a valuable resource to inform the tutor of the student's thinking, processing, and retention. Formative assessment can provide the "in the moment" thinking and learning of students, opposed to summative assessment, which typically follows the completion of a unit.



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## Elementary Specific Formative Assessment

Elementary math specific resource to assess student thinking and understanding to inform math instructional and tutoring moves.

- [Formative assessment with interactive whiteboards: A one-year longitudinal study of primary students' mathematical performance](#)
- [Formative Re-Engaging Lessons](#)

## General Formative Assessment

Resources to assess student thinking and understanding to inform math instructional and tutoring moves.

- [7 Smart Ways to do Formative Assessment](#)
- [27 Easy Strategies Formative Assessment Strategies](#)
- [Feedback that Empowers Students](#)
- [Using Frequent Feedback Cycles to Guide Student Work](#)
- [Using Popular Apps for Formative Assessment](#)

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## Goal Setting

Effective tutors work with students to establish goals for their learning during tutoring sessions. This process allows students and tutors to celebrate progress and gives students agency and a sense of autonomy over their learning.

Guides to establish and write goals for tutors and students.

- [How to write SMART Goals](#)
- [SMART Goal Setting with your Student](#)
- [Thinking Critically About Goal Setting](#)
- [Tutor-Student Goal Setting Conferences](#)

## Tutor Program Manager: Professional Learning

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### Coaching and Feedback

Intention-driven coaching strategies provide opportunities for tutors to reflect and create actionable plans to continuously improve the effectiveness of their instructional practice. This section contains tools for tutor program managers to provide effective coaching and feedback to tutors through observations and direct, timely feedback.

#### Observation and Feedback



Resources to provide sound and valuable feedback to tutors.

- [District Playbook: Training and Supporting Tutors](#)
- [Feedback and Individualized Coaching](#) (can be adapted for math)
- [Instructional Quality Assessment](#)
- [Ready to Learn Tutor Observation Form](#)
- [Ready to Learn Tutor Observation Feedback Guide](#)

## Initial Training

The resources in this section include guidance, materials and tools to support initial training and ongoing coaching for math tutors.

### High-Impact Tutoring

The research behind and description of drivers of high-impact tutoring.

- [High-Impact Tutoring Standards](#)
- [High-Impact Tutoring: State of the Research and Priorities for Future Learning](#)
- [What is High Impact Tutoring?](#)

### Initial Training and Coaching

Guidance for initial tutor training and ongoing coaching.

- [In-Service Training & Support Guidance](#)
- [Metro Nashville Training](#)
- [Mindset Training](#)
- [Pre-Service Tutor Training Guidance](#)
- [Professional Learning Toolkit for Early Literacy Tutors](#) (can be adapted for math)
- [Saga Coach](#) (asynchronous tutor training modules)
- [Stanford Training Resources](#) (course required for students to tutor in local schools)
- [Tutor Feedback and Individualized Coaching](#)
- [Webinar: Tutor Training: Tutor Types & Training](#)
- [Webinar: Tutor Training: Effective Facilitation and Relationship Building](#)

### Professional Learning Topics

Effective tutors have strong initial training and ongoing coaching and professional learning. The resources in this section include training materials and tools to support math tutor professional learning.

### Approach to Teaching Math

Video on bringing math to life and teaching it in a fun way.

- 
- [Five Principles of Extraordinary Math Teaching](#)

### **Equity in Math Instruction**

Resources for understanding and achieving equity in the math learning environment.

- [Equity in Mathematics Education Requires a Systemic Approach](#)
- [Making Equity a Reality in Your Math Classroom](#)
- [UnboundEd Professional Learning Modules for Teachers](#)

### **Instructional Videos**

Instructional videos for a range of math topics including equations, geometry concepts, and more as well as teaching strategies including virtual assessments, grouping students, and more.

- [Project STAIR](#)

### **Mathematical Practice Standards**

Information on the Common Core Standards and connections to the Mathematical Practice Standards.

- [Implementing the Mathematical Practice Standards](#)

### **MTSS/RTI**

Website describing the relationship between RTI and MTSS, and instruction, assessment, and decision making at Tiers 1, 2, and 3.

- [MTSS/RTI: Mathematics](#)

## **Tutor Program Manager: Tutor Program Design**

These resources provide guidance for understanding the elements of effective tutoring and designing an effective, high-impact tutoring program.

### **High-Impact Tutoring**

The research behind and description of drivers of high-impact tutoring.

- [High-Impact Tutoring Standards](#)
- [High-Impact Tutoring: State of the Research and Priorities for Future Learning](#)
- [What is High Impact Tutoring?](#)

### **Tutor Program Design**

Resources to support tutor program managers in developing a strong tutoring program.



- [Funding Tutoring Programs](#)
- [High-Impact Tutoring: Equitable and Effective Student Learning Acceleration](#)
- [How to Gather Rigorous Evidence of your Tutoring Program's Effectiveness](#)
- [Key Considerations for Designing High-Impact Tutoring Programs: Learning from NCLB Supplemental Education Services](#)
- [Toolkit for Tutoring Programs](#)
- [Using the American Rescue Plan Act Funding For High-Impact Tutoring](#)
- [What your District Needs to Do Now to Sustain your Tutoring Program Post-ARPA Funding](#)

## Tutor Program Manager: More Resources

### Example Math Tutoring Programs

These math tutoring programs provide a range of examples of how math tutoring can be implemented in different contexts at the school and district level and during out of school time.

#### District Tutoring Initiatives

These example school profiles provide insight to the ways in which districts are implementing tutoring.

- [Blueprint School Network](#)
- [Sample Tutoring Programs](#)

#### In-school tutoring

One of the most effective ways to deliver math tutoring is during the school day. These examples illustrate tutoring providers that implement their program during the school day.

- [Proven Tutoring](#)

#### Out-of-School Tutoring

Examples below illustrate how tutoring can be implemented in an after school context.

- [CityTutor DC](#)
- [Ready to Learn](#)

#### Student Math Performance Landscape

The math landscape information provides pertinent and valuable information on student performance in reading and mathematics in the United States.

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## Data on Student Performance

Understanding national math learning performance and trends is an important tool for math educators when planning instruction, assessing student learning, and analyzing student growth in math learning.

- [Dynamic Learning Maps by State](#)
- [National Assessment of Educational Progress 2022](#)

## Improvement Strategies

A study providing strategies to support middle grades math learning for struggling students.

- [National Survey on Supporting Struggling Mathematics Learners](#)

## PK - 8 Math Tutoring Articles

Bailey, D.H., Duncan, G. J., Murnane, R.J., & Au Yeung, N. (2021). [Achievement gaps in the wake of COVID-19](#). *Educational Researcher*, 2021, Vol. 50 (5), 266 - 275.

Bonner, M. P. (2021). [Practicing culturally responsive mathematics teaching](#). *Mathematics Teacher: Learning & Teaching PK - 12*. Vol. 114 (1), (6 - 15).

Chine, D. R. et al. (2022). [Educational equity through combined human-AI personalization: A Propensity Matching Evaluation](#). In: Rodrigo, M. M/, Matsuda, N., Cristea, A. I., Dimitrova, V. (Eds.) *Artificial Intelligence in Education. AIED 2022. Lecture Notes in Computer Science*, 13355. Springer, Cham.

Creider, S. C. (2020). [Student talk as a resource: Integrating conflicting agendas in math tutoring sessions](#). *Linguistics and Education*, 58, 2020 Journal homepage: [www.elsevier.com/locate/linged](http://www.elsevier.com/locate/linged) *Science*, 49, 709 - 735.

Curtis, K., Lindo, K., Jansen, A. (2021). [Discourse can create a learning culture](#). *Mathematics Teacher: Learning & Teaching PK - 12*, Vol. 114 (1), (55 - 62).

DeLiema, D. (2017). [Co-constructed failure narratives in mathematics tutoring](#). *Instructional Science*, 45, 709 - 736.

Dougherty, B., Pedrotty Bryant, D., Bryant, B. R., & Shin, M. (2017). [Helping students with mathematics difficulties understand ratios and proportions](#). *TEACHING Exceptional Children*, 49(2), 96–105.

Durkin, K., Star, J. R., & Rittle-Johnson, B. (2017). [Using comparison of multiple strategies in the mathematics classroom: Lessons learned and next steps](#). *Mathematics Education*, 49, 585–597.



Foegen, A., Stecker, P.M., Genareo, V. R., Lyons, R. Olson, J.R. Simpson, A., Romig, J. E., & Jones, R. (2016). [\*Using an online tool for learning about and implementing Algebra progress monitoring.\*](#) TEACHING Exceptional Children, 49(2), 106 - 114.

Haynes, K. B. & Brendle, J. (2019). [\*Cross-age math tutoring of kindergarten and first grade students by middle school tutors.\*](#) International Journal of Education in Mathematics, Science and Technology (IJEMST), 7(3), 238-250.

Nickow, A., Oreopoulos, P., Quan, V. (2020). [\*The impressive effects of tutoring on Prek-12 learning: A systematic review and meta-analysis of the experimental evidence.\*](#) NBER working paper No. 27476.

Powell, S., Driver, M., Julian, T. (2015). [\*The Effect of Tutoring With Nonstandard Equations for Students with Mathematics Difficulty.\*](#) Journal of Learning Disabilities, Vol 48(5), 523 - 534.

Thomas, C. A. & Berry, R. Q. (2019). [\*A qualitative metasynthesis of culturally relevant pedagogy & culturally responsive teaching: Unpacking mathematics teaching practices.\*](#) Journal of Mathematics Education At Teachers College, Spring 2019, Volume 10, Issue 1.

Thurston, A., Roseth, C., Chang, T., Burns, V., Topping, K.J. (2020). [\*The influence of social relationships on outcomes in mathematics when using peer tutoring in elementary school.\*](#) International Journal of Educational Research Open, Volume 1, 2020, 100004, ISSN 2666-3740.

## PK - 8 Math Tutoring Books

Boaler, J. (2022). [\*Mathematical mindsets: Unleashing students' potential through creative mathematics inspiring and innovative teaching.\*](#) Josey-Bass: Hoboken, NJ.

Django, P., Alim, H. S. (2017). [\*Culturally Sustaining Pedagogies: Teaching and Learning for Justice in a Changing World.\*](#) Teachers College Press: New York, NY.

Gay, G. (2018). [\*Culturally responsive teaching: Theory, Research and Practice.\*](#) Teachers College Press: New York, NY.

Goffney, I., Gutierrez, R. (2018). [\*Rehumanizing Mathematics for Black, Indigenous, and Latinx Students.\*](#) National Council of Teachers of Mathematics, Inc.

Hammond, Z. L. (2015). [\*Culturally Responsive Teaching and the Brain.\*](#) Corwin Press.

Ladson-Billings, G. (2009). [\*The dream-keepers: Successful teachers of African American children.\*](#) Jossey-Bass: San Francisco, CA.

Leonard, J. & Martin, D. B. (Eds.) (2013). [\*The brilliance of black children in mathematics: Beyond the numbers and towards new discourse.\*](#) Information Age Publishing, Inc.: Charlotte, NC.

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Martin, D. B., & Mayfield-Ingram, K. (2013, March 15). [\*The Impact of Identity in K-8 Mathematics Learning and Teaching: Rethinking Equity-based Practices\*](#). National Council of Teachers of Mathematics, Inc.

Milner, H. R. (2020). [\*Start where you are, but don't stay there: Understanding diversity, opportunity gaps, and teaching in today's classrooms\*](#). Harvard Education Press: Cambridge, MA.

Seda, P., & Brown, K. (2021). [\*Choosing to See: A Framework for Equity in the Math Classroom\*](#). Dave Burgess Consulting, Inc.: San Diego, CA.

## Parent (Caregiver)

The Parent (Caregiver) section includes modules on Grade Level Support, Math Learning Support and More Resources. Research suggests that parent involvement in a child's education is consistently found to be positively associated with a child's academic performance ([Topar, et al., 2010](#)). Tools are offered to support parents with direct assistance, whether on homework or as a homeschooling caregiver.

The [Grade Level Support](#) module includes two grade bands - elementary (PK - 5) and middle (6 - 8). Each grade band contains math teaching and learning materials for parents or caregivers.

The [Math Learning Support](#) module includes games, apps, guidance for integrating social emotional learning and for finding a math tutor.

Please see additional tools in the [Math Resource Appendix](#).

### Parent (Caregiver): Grade Level Support

#### PK - 5 Grade Math Tutoring Resources for Parents (Caregivers)

The resources in this section are tools for parents and caregivers to gain confidence and instructional skills to support their child's math learning at home. In addition to the resources provided in this section, collaborating with your child's math teacher and other supports within the school may prove helpful in ensuring your child is receiving the support they need to grow as math learner.

#### Demonstration Lessons

Demonstration video lessons on various math topics, supplements, and math learning programs to improve math learning for students.

- [Number Talks](#)
- [Public Lessons](#)
- [Zearn Math](#)

#### Story Problem Support

An organized and structured method for parents and caregivers to provide word problem support at home.

- [Math Word Problem Support- Parents](#) (elementary focused)

#### Student Learning Support

A family guide and supplemental visual models.



- 
- [A Family's Guide: Fostering your Child's Success in School Mathematics](#)
  - [Math Apps](#)

## 6 - 8 Grade Math Tutoring Resources for Parents (Caregivers)

The resources in this section are tools for parents and caregivers to gain confidence and instructional skills to support their child's math learning at home. In addition to the resources provided in this section, collaborating with your child's math teacher and other supports within the school may prove helpful in ensuring your child is receiving the support they need to grow as math learners.

### Demonstration Lessons

Demonstration video lessons on various math topics, supplements, and math learning programs to improve math learning for students.

- [Number Talks](#)
- [Public Lessons](#)

### Story Problem Support

An organized and structured method for parents and caregivers to provide word problem support at home.

- [Math Word Problem Support - Parents](#)

### Student Learning Support

Supplemental math resources and manipulatives.

- [A Family's Guide: Fostering your child's success in school mathematics](#)
- [Figure This! Family Corner](#)
- [The Mathematical Playground](#)

## Parent (Caregiver): Math Learning Support at Home

### Apps and Games

Games are an effective strategy to engage students in math learning and practice. Parents and caregivers can use the apps and games below to make math learning fun and engaging at home.

### Effective Math Apps Identification



Article that describes which math games and apps have proven to be an effective means of learning math.

- [Digital Math Games and Apps: What Works and What Doesn't?](#)

### **Math Apps and Games**

Interactive math tools, manipulatives, and programs to increase problem-solving and critical thinking skills.

- [Common Sense Education: Best Adaptive Math Games and Sites](#)
- [The Mathematical Playground](#)

## On-line Math Lessons

At home practice provides the opportunity to go deeper into areas of interest and try different approaches to difficult concepts.

The websites below offer on-line and computer adaptive math lessons by grade level and topic area.

- [Khan Academy](#)
- [Math at Home](#)
- [Math Morning](#)
- [PurpleMath](#)
- [Zearn for Caregivers](#)

## Social Emotional Learning at Home

Social and emotional learning (SEL) is the process through which all young people and adults acquire and apply the knowledge, skills, and attitudes to develop healthy identities, manage emotions, achieve personal and collective goals, feel and show empathy for others, establish and maintain supportive relationships, and make responsible and caring decisions.

The tools below provide guidance for parents and caregivers on how to integrate SEL as they support their child's math learning at home.

- [Hear Stories for Families Using SEL Strategies at Home](#)
- [Resources for the Covid-19 Crisis](#)
- [SEL with Families & Caregivers](#)

# Math Resource Appendix

Resource	Tutoring Framework Reference	Source	User
<b>Culturally Sustaining Teaching and Learning</b>			
<b>Culturally Sustaining Education</b>			
<a href="#">Anti - Bias Toolkit</a>	Equity	UnboundEd	Teacher as Tutor, Tutor Program Manager
<a href="#">Centering Equity During Pandemic Recovery</a>	Equity	Alliance for Resource Equity	Tutor, Teacher as Tutor, Tutor Program Manager
<a href="#">Checking for Bias</a>	Equity	Southern Poverty Law Center	Tutor, Teacher as Tutor, Tutor Program Manager
<a href="#">Culturally Responsive - Sustaining Education</a>	Equity	University of the State of New York	Tutor, Teacher as Tutor, Tutor Program Manager
<a href="#">Developing Your Cultural Awareness</a>	Equity	Digital Promise	Tutor, Teacher as Tutor, Tutor Program Manager
<a href="#">Digital Equity Considerations: Advancing Digital Equity for All</a>	Equity, Instruction	Office of Educational Technology	Tutor, Teacher as Tutor, Tutor Program Manager, Parent (Caregiver)



<a href="#">Dimensions of Equity</a>	Equity	Alliance for Resource Equity	Tutor, Teacher as Tutor, Tutor Program Manager
<a href="#">Dismantling Mathematics Microaggressions</a>	Equity	TODOS Mathematics for All	Tutor, Teacher as Tutor, Tutor Program Manager
<a href="#">High Level Tasks in the Mathematics Classroom</a>	Instruction	Institute for Learning	Teacher as Tutor, Tutor Program Manager
<a href="#">Including Voice in Education: Addressing Equity Through Student and Family Voice</a>	Equity	Institute of Education Sciences	Teacher as Tutor, Tutor Program Manager
<a href="#">Learner Variability Project in the Field: A Guide for Culturally Responsive Practice</a>	Equity	Digital Promise	Tutor, Teacher as Tutor, Tutor Program Manager
<a href="#">Learning for Justice Film Kits</a>	Equity	Learning for Justice - Southern Poverty Law Center formerly Teaching Tolerance	Teacher as Tutor, Tutor Program Manager
<a href="#">Learning for Justice Self-Guided Learning</a>	Equity, Instruction	Learning for Justice - Southern Poverty Law Center formerly Teaching Tolerance	Teacher as Tutor, Tutor Program Manager
<a href="#">Learning for Justice Webinars</a>	Equity	Southern Poverty Law Center	Tutor, Teacher as Tutor, Tutor

			Program Manager
<a href="#">Math and Social Justice</a>	Equity, Instruction	Radical Math	Teacher as Tutor, Tutor Program Manager
<a href="#">Social Justice and Equity Resources by Topic</a>	Equity, Instruction	National Council of Teachers of Mathematics	Teacher as Tutor, Tutor Program Manager
<a href="#">Social Justice Math Problems grades 3 - 12</a>	Equity, Instruction	University of Tennessee	Teacher as Tutor, Tutor Program Manager
<a href="#">Student + Teacher Collaborative on Race and Racism</a>	Equity	Dallas ISD	Teacher as Tutor, Tutor Program Manager
<a href="#">Teachers Empowered to Advance Change in Mathematics Project (TEACH Math)</a>	Equity	Teach Math	Teacher as Tutor, Tutor Program Manager
<a href="#">Teaching STEM in Ways that Respect and Build Upon Indigenous People’s Rights</a>	Equity	Institute for Science + Math Education	Tutor, Teacher as Tutor, Tutor Program Manager
<a href="#">Toolkit for “Mathematics in Context: The Pedagogy of Liberation”</a>	Equity	Southern Poverty Law Center	Tutor, Teacher as Tutor, Tutor Program Manager
<b>Equitable Math Teaching</b>			
<a href="#">4 Go - To Learner - Centered Routines to Bolster Math</a>	Equity, Instruction	Institute for Learning -	Tutor, Teacher as Tutor, Tutor



<a href="#">Discussions, In - Person and Online</a>		University of Pittsburgh	Program Manager
<a href="#">A Pathway to Equitable Math Instruction</a>	Equity, Instruction	Pathway to Equitable Instruction	Teacher as Tutor, Tutor Program Manager
<a href="#">Agency and Voice: A Push for Greater Equity and What it Looks Like in Math</a>	Equity, Instruction	Institute for Learning - University of Pittsburgh	Tutor, Teacher as Tutor, Tutor Program Manager
<a href="#">Creating Equitable Classrooms Via Culturally Inclusive Mathematics Teaching</a>	Equity, Instruction	Casio Education	Teacher as Tutor, Tutor Program Manager
Equitable Mathematics Instruction	Equity, Instruction	UnboundEd	Tutor, Teacher as Tutor, Tutor Program Manager
<a href="#">Equity in Mathematics Education Requires a Systemic Approach</a>	Equity, Instruction	Casio Education	Teacher as Tutor, Tutor Program Manager
<a href="#">Making Equity a Reality in Your Math Classroom</a>	Equity, Instruction	Casio Education	Teacher as Tutor, Tutor Program Manager
<a href="#">Racial Equity Tools</a>	Equity	Racial Equity Tools	Teacher as Tutor, Tutor Program Manager
<a href="#">Using 4 Learner - Centered Routines to Build Positive</a>	Equity, Instruction	Institute for Learning -	Tutor, Teacher as Tutor, Tutor

<a href="#">Math Identity in Equitable Classrooms</a>		University of Pittsburgh	Program Manager
<b>Math for Multilingual Learners (English Language Learners)</b>			
<a href="#">English Learner Success Forum Math Guidelines</a>	Equity, Instruction	English Learners Success Forum	Teacher as Tutor, Tutor Program Manager
<a href="#">Information for Mathematics Educators of Students Who are English Learners in Grades 6 - 8</a>	Equity, Instruction	Education Development Center	Tutor, Teacher as Tutor, Tutor Program Manager
<a href="#">Middle Grades Mathematics Instruction for Multilingual Learners: Strategies for Success</a>	Equity, Instruction	Education Development Center	Tutor, Teacher as Tutor, Tutor Program Manager
<a href="#">Multilingual Learning Toolkit</a>	Equity, Instruction	New Venture Fund	Teacher as Tutor, Tutor Program Manager
<a href="#">Positioning Multilingual Learners for Success in Mathematics</a>	Equity, Instruction	TODOS Mathematics for All	Teacher as Tutor, Tutor Program Manager
<a href="#">Research on Multilingual Learners in Mathematics Classrooms</a>	Equity, Instruction	TODOS Mathematics for All	Tutor, Teacher as Tutor, Tutor Program Manager
<b>Relationship Building</b>			
<a href="#">Creating a Sense of Belonging: A Critical Need for Student Engagement and Success</a>	Equity, Safety	EdWeb	Tutor, Tutor Program Manager



<a href="#">Critical Mentorship - A Practical Guide (Book)</a>	Equity, Safety	Torie Weiston-Serdan	Tutor, Tutor Program Manager
<a href="#">Empowering Students to Develop an Academic Identity</a>	Equity, Safety	Edutopia	Tutor, Tutor Program Manager
<a href="#">Relationship Strategy for Addressing Challenging Behavior</a>	Equity, Instruction, Safety	Edutopia	Tutor, Teacher as Tutor, Tutor Program Manager
<a href="#">Tapping Into Compassion When Students Push Your Buttons</a>	Equity, Safety	Edutopia	Tutor, Tutor Program Manager
<a href="#">Tutoring Toolkit: Relationship - Building</a>	Equity, Safety	National Student Support Accelerator	Tutor
<b>Social Emotional Learning</b>			
<a href="#">Fundamentals of SEL</a>	Data Use, Instruction	CASEL	Tutor, Teacher as Tutor, Tutor Program Manager
<a href="#">Hear Stories for Families Using SEL Strategies at Home</a>	Instruction	CASEL	Parent (Caregiver)
<a href="#">SEL in the Classroom</a>	Data Use, Instruction	CASEL	Tutor, Teacher as Tutor, Tutor Program Manager
<a href="#">SEL with Families &amp; Caregivers</a>	Data Use, Instruction	CASEL	Parent (Caregiver)
<a href="#">Social and Emotional Learning and Mathematics</a>	Instruction	University of Texas at Austin	Teacher as Tutor, Tutor



			Program Manager
<a href="#">The Possibilities of SEL + Mathematics</a>	Instruction	TODOS Mathematics for All	Tutor, Teacher as Tutor, Tutor Program Manager
<a href="#">What is Social Emotional Learning?</a>	Data Use, Instruction	CASEL	Tutor, Teacher as Tutor
<b>Grade Level Support</b>			
<b>PK - 5</b>			
<a href="#">10 Key Mathematics Practices for All Elementary Schools</a>	Instruction	Meadows Center for Preventing Educational Risk	Tutor, Teacher as Tutor, Tutor Program Manager
<a href="#">A Family's Guide: Fostering your child's success in school mathematics</a>	Instruction, Learning Integration	National Council of Teachers of Mathematics	Parent (Caregiver)
<a href="#">Assistments</a>	Instruction	Assistments	Tutor, Teacher as Tutor
<a href="#">Counting and Cardinality: A Guide to Kindergarten Math Standards</a>	Instruction	UnboundEd	Tutor, Teacher as Tutor, Tutor Program Manager
<a href="#">How to Keep Your Elementary Students Focused</a>	Instruction	Edutopia	Tutor, Teacher as Tutor, Tutor Program Manager
<a href="#">Math Apps</a>	Instruction	Math Learning Center	Tutor, Teacher as Tutor, Tutor Program Manager,



			Parent (Caregiver)
<a href="#">Math Word Problem Support at Home</a>	Instruction, Learning Integration	Meadows Center for Preventing Educational Risk	Parent (Caregiver)
<a href="#">Number &amp; Operations in Base Ten: A Guide to Grade 5 Math Standards</a>	Instruction	UnboundEd	Tutor, Teacher as Tutor, Tutor Program Manager
<a href="#">Number Talks</a>	Instruction	University of Texas at Austin	Tutor, Teacher as Tutor, Tutor Program Manager, Parent (Caregiver)
<a href="#">Operations and Algebraic Thinking: A Guide to Grade 1 Math Standards</a>	Instruction	UnboundEd	Tutor, Teacher as Tutor, Tutor Program Manager
<a href="#">Operations and Algebraic Thinking: A Guide to Grade 2 Math Standards</a>	Instruction	UnboundEd	Tutor, Teacher as Tutor, Tutor Program Manager
<a href="#">Operations and Algebraic Thinking: A Guide to Grade 3 Math Standards</a>	Instruction	UnboundEd	Tutor, Teacher as Tutor, Tutor Program Manager
<a href="#">Operations and Algebraic Thinking: A Guide to Grade 4 Math Standards</a>	Instruction	UnboundEd	Tutor, Teacher as Tutor, Tutor Program Manager
<a href="#">Pirate Math Education Quest</a>	Instruction	Vanderbilt University	Tutor, Teacher as Tutor, Tutor

			Program Manager
<a href="#">Play. Create. Share.</a>	Instruction	Math Minds	Tutor, Teacher as Tutor, Tutor Program Manager
<a href="#">Project STAIR (videos)</a>	Instruction	Project STAIR - University of Missouri, Southern Methodist University, and the University of Texas at Austin	Tutor, Teacher as Tutor, Tutor Program Manager
<a href="#">Pre-School Teachers can use a PBS Kids Transmedia Curriculum Supplement to Support Young Children’s Mathematics Learning: Results of a Randomized Controlled Trial</a>	Instruction	Education Development Center	Teacher as Tutor, Tutor Program Manager
<a href="#">Public Lessons</a>	Instruction	University of Texas at Austin	Tutor, Teacher as Tutor, Tutor Program Manager, Parent (Caregiver)
<a href="#">SFUSD Elementary Math Distance Learning Scope and Sequence</a>	Instruction	SFUSD	Teacher as Tutor, Tutor Program Manager
<a href="#">The Mathematics Task Analysis Guide</a>	Instruction	Implementing standards-based mathematics instruction: A	Teacher as Tutor



		casebook for professional development	
<a href="#">What Works Clearinghouse</a>	Instruction	Institute of Education Sciences	Teacher as Tutor, Tutor Program Manager
<a href="#">Zearn Math</a>	Instruction	Zearn	Tutor, Teacher as Tutor, Tutor Program Manager, Parent (Caregiver)
<b>6 - 8</b>			
<a href="#">10 Key Math Practices for All Middle and Secondary Schools</a>	Instruction	Meadows Center for Preventing Educational Risk	Tutor, Teacher as Tutor, Tutor Program Manager
<a href="#">A Family's Guide: Fostering your child's success in school mathematics</a>	Instruction, Learning Integration	National Council of Teachers of Mathematics	Parent (Caregiver)
<a href="#">Assistments</a>	Instruction	Assistments	Tutor, Teacher as Tutor, Tutor Program Manager
<a href="#">Common Sense Education: Best Adaptive Math Games and Sites</a>	Data Use, Instruction	Common Sense Education	Tutor, Teacher as Tutor, Tutor Program Manager, Parent (Caregiver)
<a href="#">Desmos Math Tools</a>	Instruction	Desmos	Tutor, Teacher as Tutor, Tutor

			Program Manager
<a href="#">Digital Math Games and Apps: What Works and What Doesn't?</a>	Instruction	EdWeek	Tutor, Teacher as Tutor, Tutor Program Manager, Parent (Caregiver)
<a href="#">Figure This! Family Corner</a>	Instruction	National Council of Teachers of Mathematics	Teacher as Tutor, Tutor Program Manager, Parent (Caregiver)
<a href="#">Figure This! Teacher Corner</a>	Instruction	National Council of Teachers of Mathematics	Teacher as Tutor, Tutor Program Manager
<a href="#">Geometry: A Guide to Grade 8 Math Standards</a>	Instruction	UnboundEd	Tutor, Teacher as Tutor, Tutor Program Manager
<a href="#">Illustrative Mathematics Curriculum</a>	Instruction	Illustrative Mathematics	Tutor, Teacher as Tutor, Tutor Program Manager
<a href="#">Math Word Problem Support at Home</a>	Instruction, Learning Integration	Meadows Center for Preventing Educational Risk	Parent (Caregiver)
<a href="#">Middle School Courses: Geometry, Numbers &amp; Algebra, Probability &amp; Applications</a>	Instruction	Mathigon	Tutor, Teacher as Tutor, Tutor Program Manager



<a href="#">Number Talks</a>	Instruction	University of Texas at Austin	Tutor, Teacher as Tutor, Tutor Program Manager, Parent (Caregiver)
<a href="#">Project STAIR (videos)</a>	Instruction	Project STAIR - University of Missouri, Southern Methodist University, and the University of Texas at Austin	Tutor, Teacher as Tutor, Tutor Program Manager
<a href="#">Public Lessons</a>	Instruction	University of Texas at Austin	Tutor, Teacher as Tutor, Tutor Program Manager, Parent (Caregiver)
<a href="#">Puzzles, Activities, and Lesson Plans</a>	Instruction	Mathigon	Tutor, Teacher as Tutor, Tutor Program Manager
<a href="#">Ratios: A Guide to Grade 6 Math Standards</a>	Instruction	UnboundEd	Tutor, Teacher as Tutor, Tutor Program Manager
<a href="#">Ratios: A Guide to Grade 7 Math Standards</a>	Instruction	UnboundEd	Tutor, Teacher as Tutor, Tutor Program Manager
<a href="#">Saga Math Tutoring Curriculum</a>	Equity, Tutor, Instruction	Saga Education	Tutor, Teacher as Tutor

<a href="#">The Mathematical Playground</a>	Instruction	Mathigon	Tutor, Teacher as Tutor, Tutor Program Manager, Parent (Caregiver)
<a href="#">What Works Clearinghouse</a>	Instruction	Institute of Education Sciences	Teacher as Tutor, Tutor Program Manager
<a href="#">Zearn Math</a>	Instruction	Zearn	Tutor, Teacher as Tutor, Tutor Program Manager, Parent (Caregiver)

## Instructional Strategies

### Differentiation in Math

<a href="#">Assisting Students Struggling in Math: Intervention in the Early Grades</a>	Data Use, Instruction	Institute of Education Sciences	Tutor, Teacher as Tutor, Tutor Program Manager
<a href="#">Intensive Intervention in Mathematics Course Content</a>	Data Use, Instruction	American Institutes for Research	Tutor, Teacher as Tutor, Tutor Program Manager
<a href="#">Interventions and Progress Monitoring Toolkit: Free MTSS/RTI Templates</a>	Instruction	Panorama Education	Teacher as Tutor, Tutor Program Manager

### Effective Tutoring and Teaching

<a href="#">7 Ways to Increase a Student's Attention Span</a>	Instruction	Edutopia	Tutor, Teacher as Tutor, Tutor
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			Program Manager
<a href="#">10 Strategies to Keep Students Engaged in the Classroom</a>	Instruction	Class Craft	Teacher as Tutor
<a href="#">A Model for Improving Student Talk in the Math Classroom</a>	Instruction	Ellevation	Teacher as Tutor, Tutor Program Manager
<a href="#">Accessible Mathematics Experiences for Remote Learning</a>	Instruction	Education Development Center	Tutor, Teacher as Tutor, Tutor Program Manager
<a href="#">Accountable Talk</a>	Instruction	Institute for Learning	Tutor, Teacher as Tutor, Tutor Program Manager
<a href="#">Building Classroom Climate for Mathematical Learning</a>	Instruction	University of Texas at Austin	Teacher as Tutor, Tutor Program Manager
<a href="#">Concrete - Representational - Abstract: Instructional Sequence for Mathematics</a>	Instruction	Pennsylvania Department of Education	Tutor, Teacher as Tutor, Tutor Program Manager
<a href="#">Cross-age Math Tutoring of Kindergarten and First Grade Students by Middle School Tutors</a>	Tutor, Instruction	International Journal of Education in Mathematics	Tutor, Teacher as Tutor
<a href="#">Early Math Predicts Later Math: Implications for Interventions</a>	Instruction	University of Texas at Austin College of Education	Teacher as Tutor, Tutor Program Manager



<a href="#">Error Analysis for Mathematics</a>	Instruction	Vanderbilt University	Tutor, Teacher as Tutor, Tutor Program Manager
<a href="#">Free Teaching Resources: Fun Classroom Activities and Lesson Plan Ideas</a>	Instruction	Houghton Mifflin Harcourt	Teacher as Tutor, Tutor Program Manager
<a href="#">High Level Tasks in the Mathematics Classroom</a>	Instruction	Institute for Learning	Teacher as Tutor, Tutor Program Manager
<a href="#">High Quality Mathematics Instruction</a>	Instruction	Vanderbilt University	Tutor, Teacher as Tutor, Tutor Program Manager
<a href="#">How to Use Real World Problems to Teach Elementary School Math: 6 Tips</a>	Instruction	EdWeek	Tutor, Teacher as Tutor, Tutor Program Manager
<a href="#">Metacognitive Strategies</a>	Instruction	Vanderbilt University	Tutor, Teacher as Tutor, Tutor Program Manager
<a href="#">Number Talks</a>	Instruction	University of Texas at Austin	Tutor, Teacher as Tutor, Tutor Program Manager
<a href="#">Project STAIR (videos)</a>	Instruction	Project STAIR - University of Missouri, Southern Methodist University, and	Tutor, Teacher as Tutor



		the University of Texas at Austin	
<a href="#">Public Lessons</a>	Instruction	University of Texas at Austin	Tutor, Teacher as Tutor, Tutor Program Manager
<a href="#">Saga Math Tutoring Curriculum</a>	Equity, Tutor, Instruction	Saga Education	Tutor, Teacher as Tutor
<a href="#">Solving the Iceberg Problem - Learning Loss</a>	Instruction	New Classrooms	Tutor, Teacher as Tutor. Tutor Program Manager
<a href="#">Standards for Mathematical Practice</a>	Instruction	The University of Texas at Austin	Tutor as Teacher, Tutor Program Manager
<a href="#">Strategies to Increase All Students' Mathematics Learning and Achievement</a>	Instruction	Education Development Center	Tutor, Teacher as Tutor, Tutor Program Manager
<a href="#">The Importance of Early Math</a>	Instruction	Education Development Center	Tutor, Teacher as Tutor, Tutor Program Manager
<a href="#">The Importance of Rich Tasks in K - 12 Mathematics</a>	Instruction	McGraw Hill Education	Teacher as Tutor, Tutor Program Manager
<a href="#">The Science of Math</a>	Instruction	The Science of Math	Teacher as Tutor, Tutor Program Manager

<a href="#">Using an Online Tool For learning About and Implementing Algebra Progress Monitoring</a>	Instruction	Council for Exceptional Children	Teacher as Tutor
<a href="#">Word Problem Strategies</a>	Instruction	Pivot Learning	Tutor, Teacher as Tutor, Tutor Program Manager
<b>Formative Assessment</b>			
<a href="#">7 Smart Ways to do Formative Assessment</a>	Data Use, Instruction	Edutopia	Teacher as Tutor, Tutor Program Manager
<a href="#">27 Easy Strategies Formative Assessment Strategies</a>	Data Use, Instruction	NWEA	Tutor, Teacher as Tutor, Tutor Program Manager
<a href="#">Feedback that Empowers Students</a>	Data Use, Instruction	Edutopia	Tutor, Teacher as Tutor, Tutor Program Manager
<a href="#">Formative assessment with interactive whiteboards: A one-year longitudinal study of primary students' mathematical performance</a>	Data Use, Instruction	Science Direct	Teacher as Tutor, Tutor Program Manager
<a href="#">Formative Re-Engaging Lessons</a>	Instruction	University of Texas at Austin	Tutor, Teacher as Tutor, Tutor Program Manager
<a href="#">Using Frequent Feedback Cycles to Guide Student Work</a>	Data Use, Instruction	Edutopia	Teacher as Tutor, Tutor



			Program Manager
<a href="#">Using Popular Apps for Formative Assessment</a>	Data Use, Instruction	Edutopia	Tutor, Teacher as Tutor, Tutor Program Manager
<b>Goal Setting</b>			
<a href="#">How to write SMART Goals</a>	Data Use, Instruction	University of California	Tutor, Teacher as Tutor, Tutor Program Manager, Parent (Caregiver)
<a href="#">SMART Goal Setting with your Student</a>	Data Use, Instruction	Edutopia	Tutor, Teacher as Tutor, Tutor Program Manager, Parent (Caregiver)
<a href="#">Thinking Critically About Goal Setting</a>	Data Use, Instruction	Edutopia	Tutor, Teacher as Tutor, Tutor Program Manager, Parent (Caregiver)
<a href="#">Tutor-Student Goal Setting Conferences</a>	Data Use, Instruction	National Student Support Accelerator	Tutor, Teacher as Tutor, Tutor Program Manager
<b>Math Learning Support at Home</b>			
<a href="#">Common Sense Education: Best Adaptive Math Games and Sites</a>	Data Use, Instruction	Common Sense Education	Tutor, Teacher as Tutor, Tutor Program

			Manager, Parent (Caregiver)
<a href="#">Digital Math Games and Apps: What Works and What Doesn't?</a>	Instruction	EdWeek	Tutor, Teacher as Tutor, Tutor Program Manager, Parent (Caregiver)
<a href="#">Hear Stories for Families Using SEL Strategies at Home</a>	Instruction	CASEL	Parent (Caregiver)
<a href="#">Khan Academy</a>	Instruction	Khan Academy	Parent (Caregiver)
<a href="#">Math Morning</a>	Instruction	Math Morning	Parent (Caregiver)
<a href="#">Math at Home</a>	Instruction	The Math Learning Center	Parent (Caregiver)
<a href="#">PurpleMath</a>	Instruction	Purplemath	Parent (Caregiver)
<a href="#">Resources for the Covid-19 Crisis</a>	Data Use, Instruction	EDC	Parent (Caregiver)
<a href="#">SEL with Families &amp; Caregivers</a>	Data Use, Instruction	CASEL	Parent (Caregiver)
<a href="#">The Mathematical Playground</a>	Instruction	Mathigon	Tutor, Teacher as Tutor, Tutor Program Manager, Parent (Caregiver)
<a href="#">Zearn for Caregivers</a>	Instruction	Zearn	Tutor, Teacher as Tutor,



			Parent (Caregiver)
<b>Professional Learning</b>			
<a href="#">Five Principles of Extraordinary Math Teaching</a>	Instruction	Ted Talk	Tutor, Teacher as Tutor, Tutor Program Manager
<a href="#">District Playbook: Training and Supporting Tutors</a>		National Student Support Accelerator	Tutor Program Manager
<a href="#">Equity in Mathematics Education Requires a Systemic Approach</a>	Equity, Instruction	Casio Education	Teacher as Tutor, Tutor Program Manager
<a href="#">High-Impact Tutoring Standards</a>	Equity, Tutor, Data Use, Instruction, Learning Integration, Safety, Cohesion	National Student Support Accelerator	Tutor, Teacher as Tutor, Tutor Program Manager
<a href="#">High-Impact Tutoring: State of the Research and Priorities for Future Learning</a>	Equity, Tutor, Data Use, Instruction, Learning Integration, Safety, Cohesion	National Student Support Accelerator	Tutor, Teacher as Tutor, Tutor Program Manager
<a href="#">In-Service Training &amp; Support Guidance</a>	Tutor	National Student Support Accelerator	Tutor Program Manager
<a href="#">Implementing the Mathematical Practice Standards</a>	Instruction	Education Development Center	Teacher as Tutor, Tutor Program Manager
<a href="#">Instructional Quality Assessment in Mathematics Classroom Observation Toolkit</a>	Instruction	Melissa Boston	Tutor Program Manager

<a href="#">Making Equity a Reality in Your Math Classroom</a>	Equity, Instruction	Casio Education	Teacher as Tutor, Tutor Program Manager
<a href="#">Metro Nashville Training</a>	Tutor, Instruction	Metro Nashville Public Schools	Tutor, Teacher as Tutor, Tutor Program Manager
<a href="#">Pre-Service Tutor Training Guidance</a>	Tutor, Instruction	National Student Support Accelerator	Tutor, Teacher as Tutor, Tutor Program Manager
<a href="#">Professional Learning Toolkit for Early Literacy Tutors</a>	Equity, Tutor, Instruction	National Student Support Accelerator	Tutor, Teacher as Tutor, Tutor Program Manager
<a href="#">Mindset Training</a>	Equity, Tutor, Safety	Mentor National	Tutor Program Manager
<a href="#">MTSS/RTI Mathematics</a>	Data Use, Instruction	The IRIS Center Peabody College Vanderbilt University	Teacher as Tutor, Tutor Program Manager
<a href="#">Project STAIR (videos)</a>	Instruction	Project STAIR - University of Missouri, Southern Methodist University, and the University of Texas at Austin	Tutor, Teacher as Tutor, Tutor Program Manager
<a href="#">Ready to Learn Tutor Observation Feedback Guide</a>	Tutor, Data Use, Instruction	University of Pittsburgh Center for Urban Education	Tutor Program Manager



<a href="#">Ready to Learn Tutor Observation Form</a>	Tutor, Data Use, Instruction	University of Pittsburgh Center for Urban Education	Tutor Program Manager
<a href="#">Saga Coach for Math Tutors</a>	Equity, Tutor, Instruction	Saga Education	Tutor, Teacher as Tutor, Tutor Program Manager
<a href="#">Stanford Training Resources</a>	Tutor, Instruction	Stanford University	Tutor, Teacher as Tutor, Tutor Program Manager
<a href="#">Tutor Feedback and Individualized Coaching</a>	Tutor	National Student Support Accelerator	Tutor, Teacher as Tutor, Tutor Program Manager
<a href="#">UnboundEd Professional Learning Modules for Teachers</a>	Instruction	UnboundEd	Teacher as Tutor, Tutor Program Manager
<a href="#">Webinar: Tutor Training: Tutor Types &amp; Training</a>	Tutor	National Student Support Accelerator	Tutor, Teacher as Tutor, Tutor Program Manager
<a href="#">Webinar: Tutor Training: Effective Facilitation and Relationship Building</a>	Tutor	National Student Support Accelerator	Tutor, Teacher as Tutor, Tutor Program Manager
<a href="#">What is High Impact Tutoring?</a>	Equity, Tutor, Instruction	National Student Support Accelerator	Tutor, Teacher as Tutor, Tutor Program Manager

**Program Design**



<a href="#">Funding Tutoring Programs</a>	N/A	National Student Support Accelerator	Tutor Program Manager
<a href="#">High-Impact Tutoring: Equitable and Effective Student Learning Acceleration</a>	Equity, Tutor, Data Use, Instruction, Learning Integration, Safety, Cohesion	National Student Support Accelerator	Tutor Program Manager
<a href="#">How to Gather Rigorous Evidence of your Tutoring Program's Effectiveness</a>	N/A	National Student Support Accelerator	Tutor Program Manager
<a href="#">Key Considerations for Designing High-Impact Tutoring Programs: Learning from NCLB Supplemental Education Services</a>	N/A	National Student Support Accelerator	Tutor Program Manager
<a href="#">Toolkit for Tutoring Programs</a>	Equity, Tutor, Data Use, Instruction, Learning Integration, Safety, Cohesion	National Student Support Accelerator	Tutor Program Manager
<a href="#">Using the American Rescue Plan Act Funding For High-Impact Tutoring</a>	N/A	National Student Support Accelerator	Tutor Program Manager
<a href="#">What your District Needs to Do Now to Sustain your Tutoring Program Post-ARPA Funding</a>	N/A	National Student Support Accelerator	Tutor Program Manager

### More Resources

#### Example Math Tutoring Programs

<a href="#">Blueprint Schools Network</a>	Cohesion	Blueprint Schools Network	Tutor, Teacher as Tutor, Tutor Program Manager
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<a href="#">CityTutor DC</a>	Cohesion	CityBridge	Tutor, Teacher as Tutor, Tutor Program Manager
<a href="#">Proven Tutoring</a>	Cohesion	Proven Tutoring	Tutor, Teacher as Tutor, Tutor Program Manager
<a href="#">Ready to Learn</a>	Cohesion	University of Pittsburgh Center for Urban Education	Tutor, Teacher as Tutor, Tutor Program Manager
<a href="#">Sample Tutoring Programs</a>	Cohesion	National Student Support Accelerator	Tutor, Teacher as Tutor, Tutor Program Manager

### Student Math Performance Landscape

<a href="#">Dynamic Learning Maps by State</a>	Data Use, Instruction	University of Kansas Achievement & Assessment Institute	Tutor as Teacher, Tutor Program Manager
<a href="#">National Assessment of Educational Progress 2022</a>	Data Use	National Center for Education Statistic	Tutor as Teacher, Tutor Program Manager
<a href="#">National Survey on Supporting Struggling Mathematics Learners</a>	Data Use	Education Development Center	Tutor as Teacher, Tutor Program Manager

### PK – 8 Math Tutoring Articles

Abdulrahim, N., Orosco, M. (2019). [Culturally responsive mathematics teaching: A research synthesis](#). The Urban Review (2020) 52:1–25.

Bailey, D.H., Duncan, G. J., Murnane, R.J., & Au Yeung, N. (2021). [\*Achievement gaps in the wake of COVID-19\*](#). *Educational Researcher*, 2021, Vol. 50 (5), 266 - 275.

Bonner, M. P. (2021). [\*Practicing culturally responsive mathematics teaching\*](#). *Mathematics Teacher: Learning & Teaching PK - 12*. Vol. 114 (1), (6 - 15).

Chine, D. R. et al. (2022). [\*Educational equity through combined human-AI personalization: A Propensity Matching Evaluation\*](#). In: Rodrigo, M. M/, Matsuda, N., Cristea, A. I., Dimitrova, V. (Eds.) *Artificial Intelligence in Education*. AIED 2022. Lecture Notes in Computer Science, 13355. Springer, Cham.

Codding, R., Nelson, P., Parker, D., Edmunds, R., Klafit, J. (2022). [\*Examining the impact of a tutoring program implemented with community support on math proficiency and growth\*](#). *Journal of School Psychology*, Volume 90, February 2022, 82 - 93.

Creider, S. C. (2020). [\*Student talk as a resource: Integrating conflicting agendas in math tutoring sessions\*](#). *Linguistics and Education*, 58, 2020 Journal homepage: [www.elsevier.com/locate/linged](http://www.elsevier.com/locate/linged) Science, 49, 709 - 735.

Curtis, K., Lindo, K., Jansen, A. (2021). [\*Discourse can create a learning culture\*](#). *Mathematics Teacher: Learning & Teaching PK - 12*, Vol. 114 (1), (55 - 62).

DeLiema, D. (2017). [\*Co-constructed failure narratives in mathematics tutoring\*](#). *Instructional Science*, 45, 709 - 736.

Dougherty, B., Pedrotty Bryant, D., Bryant, B. R., & Shin, M. (2017). [\*Helping students with mathematics difficulties understand ratios and proportions\*](#). *TEACHING Exceptional Children*, 49(2), 96–105.

Durkin, K., Star, J. R., & Rittle-Johnson, B. (2017). [\*Using comparison of multiple strategies in the mathematics classroom: Lessons learned and next steps\*](#). *Mathematics Education*, 49, 585–597.

Foegen, A., Stecker, P.M., Genareo, V. R., Lyons, R. Olson, J.R. Simpson, A., Romig, J. E., & Jones, R. (2016). [\*Using an online tool for learning about and implementing Algebra progress monitoring\*](#). *TEACHING Exceptional Children*, 49(2), 106 - 114.

Haynes, K. B. & Brendle, J. (2019). [\*Cross-age math tutoring of kindergarten and first grade students by middle school tutors\*](#). *International Journal of Education in Mathematics, Science and Technology (IJEMST)*, 7(3), 238-250.

Nickow, A., Oreopoulos, P., Quan, V. (2020). [\*The impressive effects of tutoring on Prek-12 learning: A systematic review and meta-analysis of the experimental evidence\*](#). NBER working paper No. 27476.

Powell, S., Driver, M., Julian, T. (2015). [\*The Effect of Tutoring With Nonstandard Equations for Students with Mathematics Difficulty\*](#). *Journal of Learning Disabilities*, Vol 48(5), 523 - 534.

Roscoe, R., Walker, E., Patchan, M. M. (2018). [\*Facilitating peer tutoring and assessment in intelligent learning systems\*](#). In S.D. Craig (Ed.), *Tutoring and Intelligent Tutoring Systems* (41-68). New York, NY: Nova Science Publishers, Inc.

Thomas, C. A. & Berry, R. Q. (2019). [\*A qualitative metasynthesis of culturally relevant pedagogy & culturally responsive teaching: Unpacking mathematics teaching\*](#)



[\*practices\*](#). Journal of Mathematics Education At Teachers College, Spring 2019, Volume 10, Issue 1.

Thomas-Browne, C., Boston, M., Parke, C. (2020). [\*Developing a tool to capture productive and unproductive mindsets about teaching mathematics to African American students: An initial review\*](#). Urban Education.

Thurston, A., Roseth, C., Chang, T., Burns, V., Topping, K.J. (2020). [\*The influence of social relationships on outcomes in mathematics when using peer tutoring in elementary school\*](#). International Journal of Educational Research Open, Volume 1, 2020, 100004, ISSN 2666-3740.

Topor, D. R., Keane, S. P., Shelton, T. L., & Calkins, S. D. (2010). [\*Parent involvement and student academic performance: a multiple mediational analysis\*](#). Journal of prevention & intervention in the community, 38(3), 183–197.

### PK – 8 Math Tutoring Books

Boaler, J. (2022). [\*Mathematical mindsets: Unleashing students' potential through creative mathematics inspiring and innovative teaching\*](#). Josey-Bass: Hoboken, NJ.

Craig, S.D. (2018). [\*Tutoring and Intelligent Tutoring Systems \(Education in a Competitive and Globalizing World\)\*](#). Nova Science Pub Inc.

Django, P., Alim, H. S. (2017). [\*Culturally Sustaining Pedagogies: Teaching and Learning for Justice in a Changing World\*](#). Teachers College Press: New York, NY.

Gay, G. (2018). [\*Culturally responsive teaching: Theory, Research and Practice\*](#). Teachers College Press: New York, NY.

Goffney, I., Gutierrez, R. (2018). [\*Rehumanizing Mathematics for Black, Indigenous, and Latinx Students\*](#). National Council of Teachers of Mathematics, Inc.

Hammond, Z. L. (2015). [\*Culturally Responsive Teaching and the Brain\*](#). Corwin Press.

Ladson-Billings, G. (2009). [\*The dream-keepers: Successful teachers of African American children\*](#). Jossey-Bass: San Francisco, CA.

Leonard, J. & Martin, D. B. (Eds.) (2013). [\*The brilliance of black children in mathematics: Beyond the numbers and towards new discourse\*](#). Information Age Publishing, Inc.: Charlotte, NC.

Martin, D. B., & Mayfield-Ingram, K. (2013, March 15). [\*The Impact of Identity in K-8 Mathematics Learning and Teaching: Rethinking Equity-based Practices\*](#). National Council of Teachers of Mathematics, Inc.

Milner, H. R. (2020). [\*Start where you are, but don't stay there: Understanding diversity, opportunity gaps, and teaching in today's classrooms\*](#). Harvard Education Press: Cambridge, MA.

Seda, P., & Brown, K. (2021). [\*Choosing to See: A Framework for Equity in the Math Classroom\*](#). Dave Burgess Consulting, Inc.: San Diego, CA.