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|  | **Math Resources[[1]](#footnote-1)** |
| **Evidence Sources** | **Common Core State Standards: Mathematics  (5-9)** [**http://www.corestandards.org/Math/**](http://www.corestandards.org/Math/)  *These standards define what students should understand and be able to do in their study of mathematics.*  **Considerations for STEM Education from PreK Through Grade 3 (3-8)**  [**http://cadrek12.org/sites/default/files/DRK12-Early-STEM-Learning-Brief.pdf**](http://cadrek12.org/sites/default/files/DRK12-Early-STEM-Learning-Brief.pdf)  *STEM learning is important, yet not all children have equal access to STEM learning opportunities. This discrepancy is especially evident for children with disabilities. This brief report provides an overview of the importance of STEM education for all young children.*  **Early Childhood Mathematics: Promoting Good Beginnings** **(0-8)** [**http://www.naeyc.org/files/naeyc/file/positions/psmath.pdf**](http://www.naeyc.org/files/naeyc/file/positions/psmath.pdf)  *This joint position statement of the National Association for the Education of Young Children (NAEYC) and the National Council of Teachers of Mathematics (NCTM) highlights a set of principles for effective early math instruction.*  **Early Math Knowledge Related to Later Achievement (3-9)**  [**https://news.vanderbilt.edu/2016/12/06/early-math-knowledge-related-to-later-achievement/?j=689846&e=camille.catlett@unc.edu&l=329\_HTML&u=24200006&mid=7200908&jb=1**](https://news.vanderbilt.edu/2016/12/06/early-math-knowledge-related-to-later-achievement/?j=689846&e=camille.catlett@unc.edu&l=329_HTML&u=24200006&mid=7200908&jb=1)  *A longitudinal study conducted by Vanderbilt has found that children’s math knowledge in preschool is related to their later achievement—but not all types of math knowledge were related equally. The findings suggest that educators and school administrators should consider which areas of math study they shift attention to as they develop curricula for the early years.*  **Early STEM Matters: Providing High-Quality STEM Experiences for All Young Learners (3-5)** [**http://d3lwefg3pyezlb.cloudfront.net/docs/Early\_STEM\_Matters\_FINAL.pdf**](http://d3lwefg3pyezlb.cloudfront.net/docs/Early_STEM_Matters_FINAL.pdf)  *This January 2017 report offers guidance around the development and improvement of effective early childhood science, technology, engineering, and math (STEM) education policies and practices. It describes 4 guiding principles related to early childhood STEM education and 6 recommendations for leaders at the local, state, and federal levels.*  **Engaging Diverse Learners Through the Provision of STEM Education Opportunities (3-9)** [**http://secc.sedl.org/resources/briefs/diverse\_learners\_STEM/**](http://secc.sedl.org/resources/briefs/diverse_learners_STEM/)  *This briefing paper highlights methods and materials for supporting an increased understanding of and emphasis on STEM.*  **Math in the Early Years** [**http://www.ecs.org/clearinghouse/01/09/46/10946.pdf**](http://www.ecs.org/clearinghouse/01/09/46/10946.pdf) **(0-9)**  *This publication reveals five surprising findings about the importance of early math learning, and provides implications and recommendations for state policy.*  **Mathematics Education Through the Lens of Social Justice: Acknowledgment, Actions, and Accountability (0-9)** [**https://toma.memberclicks.net/assets/docs2016/2016Enews/3.pospaper16\_wtodos\_8pp.pdf**](https://toma.memberclicks.net/assets/docs2016/2016Enews/3.pospaper16_wtodos_8pp.pdf)  *This position statement provides the rationale for and characteristics of a systemic approach that includes fair and equitable teaching practices, high expectations for all students, access to rich, rigorous, and relevant mathematics, and strong family/community relationships to promote positive mathematics learning and achievement.*  **Mathematics in Early Childhood Learning (0-6)**  [**http://www.nctm.org/Standards-and-Positions/Position-Statements/Mathematics-in-Early-Childhood-Learning/**](http://www.nctm.org/Standards-and-Positions/Position-Statements/Mathematics-in-Early-Childhood-Learning/)  *This position statement from the National Council of Teachers of Mathematics addresses the question, “Why is mathematics important for early learners?”*  **Principles and Standards for School Mathematics** [**http://www.nctm.org/standards/content.aspx?id=16909**](http://www.nctm.org/standards/content.aspx?id=16909) **(5-9)**  *This document from the National Council of Teachers of Mathematics outlines the essential components of a high-quality school mathematics program. It emphasizes the need for well-prepared and well-supported teachers and administrators, and it acknowledges the importance of a carefully organized system for assessing students’ learning and a program’s effectiveness.* |

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|  | **Math Resources** |
| **Evidence Sources** | **The Science of Early Learning (0-8)**  [**https://deansforimpact.org/wp-content/uploads/2017/01/The\_Science\_of\_Early\_Learning.pdf**](https://deansforimpact.org/wp-content/uploads/2017/01/The_Science_of_Early_Learning.pdf)  *The purpose of The Science of Early Learning is to summarize existing research related to how young children (from birth to age eight) develop skills across three domains: agency, literacy, and numeracy. This document is intended to serve as a resource to anyone who is interested in our best scientific understanding of how young children develop control of their own behavior and intentions, how they learn to read and write proficiently, and how they develop the ability to think mathe-matically. For each domain, we have identified several key questions about learning and provided a short list of principles of learning science that inform the answers to each question. Further, we have connected these principles to a set of practical implications for specific teaching strategies. And throughout this document, we generally refer to “educators” as teachers, parents, caregivers, and anyone else involved in fostering the early learning of young children.* |
| **Print Sources** | **Formula for Success: Engaging Families in Early Math Learning (0-9)**  [**https://globalfrp.org/content/download/83/561/file/Early%20Math%20FINE.pdf**](https://globalfrp.org/content/download/83/561/file/Early%20Math%20FINE.pdf)  *Early math ability is one of the best predictors of children’s later success in school. This compilation of articles written by researchers and program developers was designed to provide families with guidance, inspiration, and motivation to support their young children’s mathematical development effectively. Taken together, they show that math is part of our everyday lives, and as such, is conditioned by relationships, culture, and values; math can be an enjoyable parent-child experience; and digital media can be harnessed to promote math learning—for children and parents.*  **Help! They Still Don’t Understand Counting** [**http://files.eric.ed.gov/fulltext/EJ875422.pdf**](http://files.eric.ed.gov/fulltext/EJ875422.pdf) **(3-5)**  *This article describes a developmental framework for counting and weaves within it helpful activities derived from recent research as well as a few activities based on long-established best practices. The article briefly discusses how difficulty with counting may or may not be indicative of a math disability.*  **Helping Teachers of Mathematics Integrate the Knowledge and Culture of Families into Their Practice** **(0-9)**  [**https://globalfrp.org/content/download/83/561/file/Early%20Math%20FINE.pdf**](https://globalfrp.org/content/download/83/561/file/Early%20Math%20FINE.pdf)  *This chapter highlights four key considerations for making math more relevant to each young child and family.*  **The Impact of Family Involvement on the Education of Children Ages 3 to 8: A Focus on Literacy and Math Achievement Outcomes and Social-Emotional Skills (3-8)**  [**http://www.mdrc.org/publication/impact-family-involvement-education-children-ages-3-8**](http://www.mdrc.org/publication/impact-family-involvement-education-children-ages-3-8)  *This report summarizes research s on how families’ involvement in children’s learning and development through activities at home and at school affects the literacy, mathematics, and social-emotional skills of children ages 3 to 8.*  [**Integrating Mathematical Thinking into Family Engagement Programs**](https://www.mathematica-mpr.com/our-publications-and-findings/publications/integrating-mathematical-thinking-into-family-engagement-programs) **(0-5)**  [**https://www.mathematica-mpr.com/download-media?MediaItemId={568EA66E-CD65-43DD-AE82-41D0F2F04BC9}**](https://www.mathematica-mpr.com/download-media?MediaItemId=%7b568EA66E-CD65-43DD-AE82-41D0F2F04BC9%7d)  *The brief explains how exposing young children to early math concepts supports their development of reasoning and problem solving skills and later success in and out of school. It lays out seven practical tips that emerged from the grantees’ experiences that can guide practitioners and other stakeholders who are interested in integrating early math into their own family engagement programs, and sheds light on issues that programs may want to keep in mind while doing so.*  **Let’s Talk, Read, and Sing About STEM: Tips for Families with Young Children (3-5)**  [**http://www2.ed.gov/about/inits/ed/earlylearning/talk-read-sing/stem-toolkit-families.pdf**](http://www2.ed.gov/about/inits/ed/earlylearning/talk-read-sing/stem-toolkit-families.pdf) (English)  [**http://www2.ed.gov/about/inits/ed/earlylearning/talk-read-sing/stem-toolkit-families-es.pdf**](http://www2.ed.gov/about/inits/ed/earlylearning/talk-read-sing/stem-toolkit-families-es.pdf) (Spanish)  *You can discover STEM with your child in many ways. Talk, read, sing, play, sign or use other ways to communicate – whatever works best for your family. Here are some tips to help you get started.*  **Let’s Talk, Read, and Sing About STEM: Tips for Preschool Teachers and Providers (3-5)**  [**http://www2.ed.gov/about/inits/ed/earlylearning/talk-read-sing/stem-toolkit-preschool-teachers.pdf**](http://www2.ed.gov/about/inits/ed/earlylearning/talk-read-sing/stem-toolkit-preschool-teachers.pdf)(English)  [**http://www2.ed.gov/about/inits/ed/earlylearning/talk-read-sing/stem-toolkit-preschool-teachers-es.pdf**](http://www2.ed.gov/about/inits/ed/earlylearning/talk-read-sing/stem-toolkit-preschool-teachers-es.pdf)(Spanish)  *Here are some tips for using daily routines* *to build math and science concepts and skills through play and exploration.*  **Making Math Count More for Young Latino Children (5-9)**  [**https://www.childtrends.org/wp-content/uploads/2017/02/Early-Math-Report-2.8.pdf**](https://www.childtrends.org/wp-content/uploads/2017/02/Early-Math-Report-2.8.pdf)  *One in four U.S. kindergarteners today is Latino. How these children do in school has far-reaching implications for the country's future economy. This February 2017 report shares that Latino kindergartners' early math skills lag behind those of white kindergartners at the beginning of school - a disparity that is likely to persist or increase over time without intervention. The report discusses the implications of these findings and offers research-based recommendations to address the issue.* |
|  | **Math Resources** |
| **Print Sources** | **Math Learned Best When Children Move (5-9)**  [**http://nexs.ku.dk/english/news/2017/math-learned-best-when-children-move/**](http://nexs.ku.dk/english/news/2017/math-learned-best-when-children-move/)  *This article summarizes research findings on the connections between movement and mastery of math concepts.*  **Math, Science, and Technology in the Early Grades** [**https://files.eric.ed.gov/fulltext/EJ1118544.pdf**](https://files.eric.ed.gov/fulltext/EJ1118544.pdf)  **(3-9)**  *Douglas H. Clements and Julie Sarama document that young children possess a sophisticated informal knowledge of*  *math, and that they frequently ask scientific questions, such as why questions. Discover new ways of seeing math emerge, e.g., preschoolers’ free play involves substantial amounts of foundational math as they explore patterns, shapes, and spatial relations; compare magnitudes; and count objects.*  **Mathematical Structure and Error in Kindergarten (5-6)**  [**http://www.naeyc.org/yc/article/mathematical-structure-error-kindergarten**](http://www.naeyc.org/yc/article/mathematical-structure-error-kindergarten)  *This article focuses on choices educators make and draws attention to a little-recognized benefit of children’s errors. With stories of two children, this article shows how wrong answers can reveal children’s attention to mathematical structure. It also looks at how young children use patterns in language to make mathematical meaning.*  **More, All Gone, Empty, Full: Math Talk Every Day in Every Way** **(0-3)**  [**http://readyforlearning.net/sites/readyforlearning.drupal.ku.edu/files/docs/Greenberg2012.pdf**](http://readyforlearning.net/sites/readyforlearning.drupal.ku.edu/files/docs/Greenberg2012.pdf)  *This article highlights how being aware of early mathematical concepts can help educators to be more thoughtful and intentional about using these concepts in everyday experiences and interactions with infants and toddlers.*  **Playing with Blocks Gives Children Two Boosts Before Kindergarten (3-5)**  [**https://www.futurity.org/blocks-mathematics-executive-functioning-1785782/**](https://www.futurity.org/blocks-mathematics-executive-functioning-1785782/)  Semi-structured block play among preschool-age children has the potential to improve two skills critical to kindergarten readiness, according a new study: math and executive functioning. This article reveals the supports that adults provided for block play that yielded these results.  **Positive Early Math Experiences for African American Boys: Nurturing the Next Generation of STEM Majors(3-5)**  [**https://www.naeyc.org/resources/pubs/yc/may2018/positive-early-math-af-am-boys**](https://www.naeyc.org/resources/pubs/yc/may2018/positive-early-math-af-am-boys)  *This article argues that creating engaging early math-learning opportunities is critical, especially for African American boys, and recommends choosing materials and designing environments to optimize early math learning.*  [**Reframing Early Math Learning**](https://newamerica.cmail19.com/t/d-l-mluiitd-jyhrkydytr-jy/) **(0-9)**  [**http://frameworksinstitute.org/assets/files/Early%20Math/early-math-learning-mm-2019.pdf**](http://frameworksinstitute.org/assets/files/Early%20Math/early-math-learning-mm-2019.pdf) *Changing the way the public thinks about early math will require changing the ways advocates talk about early math. This publication summarizes findings about the patterns evident in everyday Americans’ views on early math learning and provides recommendations for responding to the communications challenges resulting from those widely held perceptions and beliefs.*  **The Roots of STEM Success: Changing Early Learning Experiences to Build Lifelong Thinking Skills (0-9)**  [**http://centerforchildhoodcreativity.org/wp-content/uploads/sites/2/2018/02/CCC\_The\_Roots\_of\_STEM\_Early\_Learning.pdf**](http://centerforchildhoodcreativity.org/wp-content/uploads/sites/2/2018/02/CCC_The_Roots_of_STEM_Early_Learning.pdf)  *This 2018 report from The Center for Childhood Creativity reviewed more than 150 studies and found that young children are capable of developing complex thinking skills before they are able to speak. The report is organized by six research-backed findings, one of which is that children need more play to become strong STEM thinkers (pages 12-16). Practical tips in each section make this a useful resource for families and professionals.*  **STEM Resources and Materials for Engaging Learning Experiences (2-8)**  [**http://www.macon.k12.nc.us/stem/wp-content/uploads/sites/21/2019/06/STEMResources.pdf**](http://www.macon.k12.nc.us/stem/wp-content/uploads/sites/21/2019/06/STEMResources.pdf)  *This article offers suggestions and examples to guide teachers’ selection of classroom STEM resources and materials.*  **Strengthening the Math-Related Teaching Practices of the Early Care and Education Workforce: Insights from Experts** **(0-5)**  [**https://cscce.berkeley.edu/strengthening-the-math-related-teaching-practices-of-the-early-care-and-education-workforce-insights-from-experts/**](https://cscce.berkeley.edu/strengthening-the-math-related-teaching-practices-of-the-early-care-and-education-workforce-insights-from-experts/)  *This report by Sharon Ryan, Marcy Whitebook, and Deborah Cassidy explores the perspective of nationally recognized experts in math and early care and education about three main issues: 1. The knowledge and competencies that practitioners need in order to teach mathematics to young children; 2. Effective strategies for educating practitioners to support young children's mathematical development; and 3. Challenges and successes in math-related ECE workforce development efforts* |
|  | **Math Resources** |
| **Audiovisual Sources** | **With Math, Seeing Is Understanding  (4-9)** [**http://www.ascd.org/ascd-express/vol12/1215-strayton.aspx**](http://www.ascd.org/ascd-express/vol12/1215-strayton.aspx)  *Visual cues stick and show that envisioning math helps children learn in lasting ways. Teachers can do more to give students internal ways to see the structure of mathematics—to understand types of units and what it means to move between them, and to pull apart and combine numbers. This articles shares examples of how to do that.*  **Building Mathematical Competencies in Early Childhood (3-6)**  [**http://earlymath.erikson.edu/building-mathematical-competencies-in-early-childhood/**](http://earlymath.erikson.edu/building-mathematical-competencies-in-early-childhood/)  *This video deals with the “whys,” “whats,” and “hows” of including rich, developmentally appropriate mathematics experi-ences for young children in pre-K classrooms. It features Early Math Collaborative instructors discussing measurement.*  **Curious Minds: Incorporating STEM into Early Childhood Classrooms** [**http://vimeo.com/16738701**](http://vimeo.com/16738701) **(0-9)**  *This webinar explores effective strategies for engaging young children though science, technology, engineering and math in preschool and early elementary classrooms. Did you know that by ten months of age, babies can distinguish a set of 2 items from a set of 3, or that providing young children with high‐quality STEM experiences early on can provide a foundation for later success in reading? Watch to learn more about how STEM may be incorporated into ECE settings.*  **Early Math Collaborative Videos** [**http://earlymath.erikson.edu/ideas/#/formats=11**](http://earlymath.erikson.edu/ideas/#/formats=11) **(3-9)**  *Search this website to find videos based on grade level, math concept, or Common Core alignment.*  **Early Mathematics: What’s a Big Idea?** **(0-9)**  [**http://www.erikson.edu/wp-content/uploads/NAEYC-2011-Big-Ideas-HynesBerry-Ginet.pdf**](http://www.erikson.edu/wp-content/uploads/NAEYC-2011-Big-Ideas-HynesBerry-Ginet.pdf)  *This PowerPoint presentation offers clear and thought-provoking ideas about what and how to teach math to young children.*  [**Let's Talk About STEM Video Series**](https://www.zerotothree.org/resources/series/let-s-talk-about-stem-video-series) **(0-5)**  [**https://www.zerotothree.org/resources/series/let-s-talk-about-stem-video-series**](https://www.zerotothree.org/resources/series/let-s-talk-about-stem-video-series)  *Young children begin to learn about early science, technology, engineering and math (STEM) through play and everyday routines, activities and interactions. These videos, illustrating the development of STEM skills in the first five years of life, are essential to understanding are available in new highlighting the development of STEM skills in the first 5 years of life. Each video is available in both English and Spanish. The URL for the Spanish version is* [**https://www.zerotothree.org/resources/series/hablemos-de-las-matematicas**](https://www.zerotothree.org/resources/series/hablemos-de-las-matematicas)  **Math Ideas for Teachers** [**http://view.vzaar.com/4772941/download**](http://view.vzaar.com/4772941/download) **(3-5)**  *This video highlights ways to teach preschoolers math concepts using nature and play.*  **Students Create Song for Learning Long Division (8-9)** [**https://www.youtube.com/watch?v=CWB0CNl8RK4**](https://www.youtube.com/watch?v=CWB0CNl8RK4)  *Here’s an example how Universal Design for Learning can be used to help students learn long division.*  **Supporting the Development of Children's Mathematics** [**http://www.aera100.net/megan-franke.html**](http://www.aera100.net/megan-franke.html)  **(5-9)**  *Megan Franke’s video presentation highlights what young children know about math and how effective teachers can build on those capabilities. A companion research fact sheet is available at* [**http://www.aera.net/Portals/38/docs/Annual\_Meeting/ 2016%20Annual%20Meeting/2016%20Knowledge%20Forum/Franke.pdf**](http://www.aera.net/Portals/38/docs/Annual_Meeting/2016%20Annual%20Meeting/2016%20Knowledge%20Forum/Franke.pdf)  **Teaching Fractions Made Easy (7-9)** [**https://positiveparentingnews.org/news-reports/teaching-fractions-made-easy/**](https://positiveparentingnews.org/news-reports/teaching-fractions-made-easy/)  *This video offers recent research on ways to effectively teach fractions to 2nd and 3rd graders, along with suggestions for how work with families to build an understanding of fractions at home.*  **UDL Guidelines in Practice: Grade 1 Mathematics** [**http://www.youtube.com/watch?v=KuTJJQWnMaQ**](http://www.youtube.com/watch?v=KuTJJQWnMaQ) **(6-8)**  *Watch as a panel of UDL experts takes you inside a diverse Language Arts classroom to show master teachers applying the principles and guidelines of UDL to first grade math.* |
| **Online Sources** | **At-Home Early Math Learning Kit for Families**  [**https://dreme.stanford.edu/news/home-early-math-learning-kit-families-ideas-supporting-young-children-s-math-skills-during**](https://dreme.stanford.edu/news/home-early-math-learning-kit-families-ideas-supporting-young-children-s-math-skills-during)(English)  [**https://dreme.stanford.edu/news/recursos-para-aprender-matem-ticas-con-los-m-s-peque-os-ideas-para-hacer-en-familia-durante-y**](https://dreme.stanford.edu/news/recursos-para-aprender-matem-ticas-con-los-m-s-peque-os-ideas-para-hacer-en-familia-durante-y)(Spanish)  DREME’s kit offers practical, research-based strategies that busy families can use to support their young children’s early math learning—at home, right now, for free, and without special materials. Available also in Spanish, these fun and easy ideas are geared toward children from birth through age 8 and can help families use their time together to explore math in everyday home routines. Included in the kit are reading tips for finding math in picture books, card games, and more. |
|  | **Math Resources** |
| **Online Sources** | [**Bedtime Math**](https://adminliveunc-my.sharepoint.com/personal/ccatlett_ad_unc_edu/Documents/Camille%20S%20drive/Toolkit/Math/Bedtime%20Math) **(0-8)** [**http://bedtimemath.org/**](http://bedtimemath.org/)  *This website offers families and children fun math stories and problems they can share together. Each days daily activity offers versions for “wee ones,” “little kids,” and “big kids.” Afterschool instructors and librarians can also find a curriculum for running math clubs.*  **Building Blocks of Math Skills** **(3-5)**  [**http://www.communityplaythings.com/resources/articles/2018/building-blocks-of-math-skills**](http://www.communityplaythings.com/resources/articles/2018/building-blocks-of-math-skills)  *Well-arranged, neatly labeled, and fully stocked block shelves are all the inspiration some children need for building. A teacher’s presence draws in others. More motivation comes from posting photographs of children’s structures, images of well-known buildings, and words and images in books about building. The mathematical thinking involved in block building continues as children “unbuild” and shelve. These tasks involve matching, counting, and estimating. This online article describes the many ways in which environments and interactions can support math learning and build connections to other domains, like literacy.*  **DREME TE Modules: Early Math Resources for Teacher Educators (2-6)**  [**http://prek-math-te.stanford.edu/modules/all**](http://prek-math-te.stanford.edu/modules/all)  *Each of the six DREME TE modules is actually a landing pad of resources for addressing key mathematical concepts. For example, the module on counting is broken down into segments that range from the development of children’s counting to supporting classroom practice. Each segment includes activities, video examples, and vignettes of real world math dilemmas.*    **Early Math Counts (0-5)** [**https://earlymathcounts.org/**](https://earlymathcounts.org/)  *This website is designed to help foster the development of early math skills in young children. It features videos of early math concepts and activities, ideas on creating math-rich environments, blogs, and resources.*  **Easy Recipes That Will Get Your Family Talking About Math (2-6)**  [**https://dreme.stanford.edu/news/easy-recipes-will-get-your-family-talking-about-math**](https://dreme.stanford.edu/news/easy-recipes-will-get-your-family-talking-about-math)  *After connecting to the evidence for how cooking can support the development of math concepts, this blog post lays out a number of effective strategies and even some simple recipes.*  **Helping Your Child Learn Mathematics** **(3-9)** [**http://www2.ed.gov/parents/academic/help/math/index.html**](http://www2.ed.gov/parents/academic/help/math/index.html)  This booklet is made up of fun activities that parents can use with children from preschool age through grade 5 to strengthen their math skills and build strong positive attitudes toward math.  **Learning and Teaching with *Learning Trajectories* [LT]2 (0-8)** [**https://www.learningtrajectories.org/**](https://www.learningtrajectories.org/)  *[LT]2 is a web-based tool for early childhood educators to learn about how children think and learn about mathematics and how to teach mathematics to young children (birth to age 8). The website provides teachers with access to information about Learning Trajectories for math. Teachers can also review short video clips of children's thinking along the math Learning Trajectories. Users can access hundreds of activity ideas to support children's development along the math trajectories.*  **Little Discoverers by Sesame Street (2-6)** [**https://www.sesamestreet.org/toolkits/stem**](https://www.sesamestreet.org/toolkits/stem)  *This STEM-focused website, created by Sesame Street, includes a number of practical tools for addressing early STEM learning for young children. There are games, videos, and art activities for educators, specialists, and families to use with their children. Family and educator newsletters with resources and strategies are also available.*  **Making Math a Family Thing (3-6)** [**https://www.gse.harvard.edu/news/uk/18/01/making-math-family-thing**](https://www.gse.harvard.edu/news/uk/18/01/making-math-family-thing)  *This web article offers strategies for families and teachers on closing the math gap between home and school. Check out the resources at the end.*  **Making Math Meaningful for Diverse Learners (3-6)**  [**https://www.naeyc.org/resources/pubs/tyc/oct2017/make-math-meaningful-diverse-learners**](https://www.naeyc.org/resources/pubs/tyc/oct2017/make-math-meaningful-diverse-learners)  *Children with different levels of exposure to math vocabulary and math activities may enter a classroom from diverse language, cultural, and experiential backgrounds. When mathematical learning at school connects to familiar experiences and objects in children’s lives, the math can seem more interesting and make more sense to children! This web article shares how to make that happen.*  **Math at Home Toolkit (2-8)** [**https://www.naeyc.org/math-at-home**](https://www.naeyc.org/math-at-home)  *This collection of online resources includes articles, printable math games, videos and activities, all of which may be downloaded. A number of the resources are available in Spanish.* |

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|  | **Math Resources** |
| **Online Sources** | **Math at Your Fingertips! Easy Counting Activities Using Number Gestures (2-6)**  [**https://dreme.stanford.edu/news/math-your-fingertips-easy-counting-activities-using-number-gestures**](https://dreme.stanford.edu/news/math-your-fingertips-easy-counting-activities-using-number-gestures)  *It's a common myth that counting on fingers is an immature math strategy and hinders children’s learning. However, research shows that using fingers to help teach early math concepts supports children’s math learning. Discover fun, easy finger-counting activities that can deepen children’s understanding of numbers in this* [*blog post*](https://stanford.us15.list-manage.com/track/click?u=d3549b4744ae019951bc135ba&id=a63825c2d9&e=a94a938005)*.*  **Math Concepts in Children’s Books** **(3-9)**  [**http://www2.ed.gov/pubs/EarlyMath/appendix.html**](http://www2.ed.gov/pubs/EarlyMath/appendix.html)  *Reading is a great way to communicate mathematical concepts to a child. It also is a wonderful opportunity to spend time together. These books, some of which are available in Spanish, can build math, language, and literacy simultaneously.*  **Math Resources for Teacher Educators (0-9)**  [**http://prek-math-te.stanford.edu/**](http://prek-math-te.stanford.edu/)  *The Development and Research in Early Math Education network of scholars has launched a website of free resources for teacher educators. These resources include modules, videos, activities, handouts, and articles designed to support teacher educators in training preservice and inservice early childhood educators.*  **One, Two, Buckle My Shoe: Understanding Number Development in Young Children (2-7)**  [**http://www.communityplaythings.com/resources/articles/2017/understanding-number-development**](http://www.communityplaythings.com/resources/articles/2017/understanding-number-development)  *This web article reviews eight number concepts that provide the foundation of later mathematics and higher order thinking.*  **PEEP and the Big Wild World**  [**http://www.peepandthebigwideworld.com/en/kids/**](http://www.peepandthebigwideworld.com/en/kids/)(kids)  [**http://www.peepandthebigwideworld.com/en/parents/**](http://www.peepandthebigwideworld.com/en/parents/) **(**families)  [**http://www.peepandthebigwideworld.com/en/educators/**](http://www.peepandthebigwideworld.com/en/educators/) (educators)  [**http://diagramcenter.org/peep.html**](http://diagramcenter.org/peep.html) (accessible activities)  *Funded by the National Science Foundation and created by WGBH, 9 Story Entertainment, TV Ontario, and American Public Television, PEEP began as an animated video series to help young children learn about science and math. PEEP now includes videos, games, and activities for children as well as resources for families and educators to develop STEM learning activities. The DIAGRAM Center and WGBH’s National Center for Accessible Media have also developed accessible PEEP activities.*    [**STEAM for All Children**](http://hsicc.cmail19.com/t/ViewEmail/j/468CFB0F10AA7D742540EF23F30FEDED/4423FA41F9FBBDE64FB5D4CAE8F50064) **(0-5)**  **http://hsicc.cmail19.com/t/ViewEmail/j/468CFB0F10AA7D742540EF23F30FEDED/4423FA41F9FBBDE64FB5D4CAE8F50064**  *Hearing and making music, experimenting with building materials, playing counting games, and participating in hands-on science experiences all promote creativity, spatial awareness, and language skills in young children. Use the resources in this issue of the Disabilities Services Newsletter to explore strategies for introducing science, technology, engineering, art, and math (STEAM) experiences to all children.*  **STEM Sprouts Science, Technology, Engineering, & Math Teaching Guide (3-5)**  [**http://www.bostonchildrensmuseum.org/sites/default/files/pdfs/STEMGuide.pdf**](http://www.bostonchildrensmuseum.org/sites/default/files/pdfs/STEMGuide.pdf)  *The STEM Sprouts Teaching Kit is the product of a collaboration between National Grid, Boston Children’s Museum, and WGBH. The goal of this curriculum is to assist preschool educators in focusing and refining the naturally inquisitive behaviors of three to five-year-olds on science, technology, engineering, and math (STEM).*  **STEM Innovation for Inclusion in Early Education Center (STEMI2E2)**  [**https://stemie.fpg.unc.edu/**](https://stemie.fpg.unc.edu/)  *The U.S. Department of Education funded this center to develop the knowledge base and provide technical assistance focused on engaging all children, especially those with disabilities, in early STEM learning opportunities. Researchers at* *STEMI2E2 are working on developing learning trajectories focused on science, technology, engineering, and STEM, and developing recom-mended practices for engaging all children in early STEM learning. The STEMI2E2 team is also developing resources to support families and practitioners including a storybook conversations series, STEM in daily routines series, video examples, and tele-coaching supports.*  **Successful STEM Education (5-9)** [**https://successfulstemeducation.org/**](https://successfulstemeducation.org/)  *This site provides information, events, and resources that highlight promising practices and tools in support of effective K-12 STEM education in schools and programs.* |
|  | **Math Resources** |
| **Online Sources** | **Teaching Math to Young Children Practice Guide** **(3-6)** [**https://ies.ed.gov/ncee/wwc/PracticeGuide/18**](https://ies.ed.gov/ncee/wwc/PracticeGuide/18)  *This* *practice guide provides five* *recommendations for teaching math to children in preschool, prekindergarten, and kindergarten. Each recommendation includes implementation steps and solutions for common roadblocks. The recommendations also summarize and rate supporting evidence. The guide is geared toward teachers, administrators, and other educators who want to build a strong foundation for later math learning.*  [**TODOS: Mathematics for ALL**](http://www.todos-math.org/parent-and-family-resources)**: Equity and Excellence in Mathematics (0-9)**  [**https://www.todos-math.org/parent-and-family-resources**](https://www.todos-math.org/parent-and-family-resources)  *This website features publications on the teaching of mathematics and resources for parents and families, some of which are in Spanish. The commitment of the organization behind this website (Teaching Equity and Excellence in Mathematics/TEEM) may be seen a variety of ways, including an article in Special Issue #7 of their journal entitled* “That’s not fair and why: Developing social justice mathematics activists in Pre-K.”  **Young Mathematicians (3-5)** [**http://youngmathematicians.edc.org/**](http://youngmathematicians.edc.org/)  *The Young Mathematicians website has tools and resources aimed at improving young children’s* ***mathematics learning*** *and* ***mastery motivation*** *and examining the effectiveness on preschoolers’ school readiness skills.* *It features activities for fostering persistence at challenging activities, math games for teachers and parents to engage young children, and printable math books with suggestions for use.* |

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1. This collection was compiled and annotated by [Camille Catlett](mailto:camille.catlett@unc.edu) for the Vermont Agency of Education and funded by the Vermont Race to the Top Early Learning Challenge Grant. It is current as of May 2020. Highlighted resources are available in English and Spanish.

   [↑](#footnote-ref-1)