

GOLD® Objectives and Dimensions for WaKIDS

Social–Emotional

1. Regulates own emotions and behaviors
 - a. Manages feelings
 - b. Follows limits and expectations
 - c. Takes care of own needs appropriately
2. Establishes and sustains positive relationships
 - c. Interacts with peers
3. Participates cooperatively and constructively in group situations
 - a. Balances needs and rights of self and others
 - b. Solves social problems

Physical

4. Demonstrates traveling skills
5. Demonstrates balancing skills
7. Demonstrates fine-motor strength and coordination
 - a. Uses fingers and hands
 - b. Uses writing and drawing tools

Language

8. Listens to and understands increasingly complex language
 - a. Comprehends language
 - b. Follows directions
9. Uses language to express thoughts and needs
 - b. Speaks clearly
10. Uses appropriate conversational and other communication skills
 - a. Engages in conversations

Note: These 20 objectives are a subset of the 38 objectives for development and learning appearing in *GOLD® Objectives for Development & Learning, Birth Through Third Grade*, © 2016 by Teaching Strategies, LLC, Bethesda, MD. The number associated with the objective corresponds with the GOLD® objective; numbers are missing when the associated GOLD® objective is not part of WaKIDS.

Cognitive

11. Demonstrates positive approaches to learning
 - a. Attends and engages
 - b. Persists
 - c. Solves problems
12. Remembers and connects experiences
 - a. Recognizes and recalls
13. Uses classification skills
14. Uses symbols and images to represent something not present
 - a. Thinks symbolically

Literacy

15. Demonstrates phonological awareness, phonics skills, and word recognition
 - a. Notices and discriminates rhyme
 - c. Notices and discriminates discrete units of sound
16. Demonstrates knowledge of the alphabet
 - a. Identifies and names letters
 - b. Identifies letter–sound correspondences
17. Demonstrates knowledge of print and its uses
 - b. Uses print concepts
18. Comprehends and responds to books and other texts
 - b. Uses emergent reading skills
19. Demonstrates writing skills
 - a. Writes name

Mathematics

20. Uses number concepts and operations
 - a. Counts
 - b. Quantifies
 - c. Connects numerals with their quantities
21. Explores and describes spatial relationships and shapes
 - b. Understands shapes

Issue BRIEF

Barbara Harris and Dana Petersen

Developing Math Skills in Early Childhood

Infants begin to learn math before they can sit up. They notice differences in quantity, they compare the shape and size of objects, and they use early math concepts when they play and in other aspects of their daily lives.¹ Math helps children to develop the ability to think critically and solve problems.^{2,3} Both are integral to success in school and in life, but not all children learn the math skills they need to succeed.⁴



WHY IS EARLY MATH IMPORTANT?

A large body of evidence shows a connection between being competent in early math and success in school, even after controlling for family characteristics, early IQ, reading achievement, and other factors.⁵⁻¹⁰ In fact, early math skills may be the strongest predictor of later success in both reading and math.^{6,9,11-12}

Weaknesses in math skills, however, begin early and are evident by the time children enter

kindergarten.¹³ Unfortunately, children who enter kindergarten with weak math skills are likely to remain behind their peers in the later grades.^{10,12,14} In addition, the children who are the least prepared in math when they enter kindergarten tend to be from minority and low-income families, or they are just learning to speak English.^{10,15} These factors suggest that improving the long-term outcomes for all children may depend on exposing them to more early math concepts before they enter school.

KINDERGARTEN READINESS¹⁶

- Many children across the nation are not ready for kindergarten math.
- Children from disadvantaged households are much less likely to be ready for kindergarten math.

This brief presents a promising approach to supporting young children's early math skills development. The approach synthesizes the influence of parents, the home environment, and children's health care providers, and is being implemented by Reach Out and Read. Reach Out and Read is a program in which health care providers give young children new books and encourage parents to read with their children at home. When families participate in Reach Out and Read, parents read aloud more often and children improve their language and literacy skills.¹⁷

Because math and reading can be easily integrated through Reach Out and Read, parents can learn to simultaneously support the development of their children's early language, literacy, and math skills in an enjoyable and developmentally-appropriate way. Thus, the program has the potential to improve kindergarten readiness in math and literacy. Because children see their health care providers often during the first few years of life, Reach Out and Read's initiative could support a large percentage of children across the nation through the network of Reach Out and Read programs.

WHAT IS EARLY MATH?

The term “early math” refers to a broad range of basic concepts such as counting (1, 2, 3); quantity (more, fewer); shapes (circles, squares, triangles); spatial relations (over, under); measurement (tall, short; bigger, smaller); and patterns (red, blue, red, blue).¹⁸⁻¹⁹

Because children are naturally curious, they explore these concepts as they interact with their environment.¹⁹⁻²⁰ For example, young children explore math when they play and build towers with blocks. In building, they sort the blocks by size and color, notice spatial relationships, and develop reasoning skills as they learn which shapes can be placed on top of one another, which ones will topple the tower they have built, and how to combine shapes to create familiar objects.¹ Preschoolers count or compare objects as they play, and explore patterns and shapes.²¹

Children must interact with adults, however, to learn the words that represent the basic math concepts that they experience. Parents and other adults can incorporate this developmental support into their daily routine. For example, while building towers or reading books with young children, parents can point out—and use words to denote—different sizes and shapes. For toddlers and older children, parents and adults can use regular activities, such as doing laundry, as a teaching tool by encouraging children to count or sort items in a laundry basket. Setting the table for a meal is another way to encourage children to think in mathematical terms. Parents or adults could ask a child how many spoons are needed on the dinner table. Figure 1 shows the progression of some of the typical math concepts that children learn from birth through age 5.

Children must interact with adults to learn the words that represent the basic math concepts that they experience.



Development of early math skills over time

Infants	Distinguish between small groups of objects (1 versus 2)
Toddlers	Use number words to label small quantities (such as 1 dog or 2 cats)
2-3 years old	Count objects by touching or pointing to them
3-4 years old	Quickly recognize small groups of objects without counting (such as 1, 2, or 3 balls)
4-5 years old	Begin to add or subtract small quantities (such as adding or subtracting 1 or 2 toys)

Figure 1

“Parents are babies’ first and most important teachers. When parents engage their babies in responsive, loving, and joyful relationships from the earliest days, parents support their child’s social-emotional, language, literacy, and math skill development.”
--Marny Dunlap, MD;
Oklahoma City,
Oklahoma

HOW IS THE DEVELOPMENT OF EARLY MATH RELATED TO EARLY LITERACY?

A common concern is that supporting early math might mean taking time away from something else, such as early literacy. Yet, this does not have to be the case. The development of early math and early literacy skills are intertwined,³ and efforts to support both can take place simultaneously. In fact, when math is taught hand-in-hand with other subjects, such as reading, children learn more math than they would if they were taught only math.¹⁸

Children learn math and language in a similar progression. Starting in infancy, language and literacy skills develop over time as children build their vocabulary, sentence length, and sentence complexity. Children learn how to express their ideas in words by building their vocabulary, their understanding of grammar, and their ability to use longer, more complex sentences.²² Learning early math involves a similar progression as children initially learn basic math vocabulary, then how to recognize math in the world around them, and then over time learn how to express more complex math concepts involving measurement, geometry, and reasoning.^{3,23}

Math talk means talking about numbers, shapes, space, and dimensions in order to encourage mathematical thinking. It also involves asking children questions to stimulate a discussion about math concepts.



Recommended well-child “checkups” are frequent in early childhood: 7 before the first birthday; 6 from age 1 through age 3.

Reading books, telling stories, and using “math talk” are easy, effective ways to integrate and promote the development of early math and early literacy skills. Children’s books provide many ways to highlight math. For example, *Moo Baa La, La, La* by Sandra Boynton enables counting of animals on each page and comparisons of relative size (big and small animals). *Goodnight Moon* by Margaret Wise Brown provides opportunities to count items on each page and learn about spatial relations such as over and under. *The Doorbell Rang* by Pat Hutchins shows how sharing a plate of cookies can be used to introduce fundamentals of fractions and division. These are just three examples of children’s books that simultaneously support the development of early math and literacy skills.

HOW CAN PARENTS AND THE HOME ENVIRONMENT SUPPORT CHILDREN’S EARLY MATH DEVELOPMENT AND SUBSEQUENT LEARNING?

A nurturing parent-child relationship helps children build self-esteem, confidence, and a sense of security – all of which support early learning. Nurturing relationships and a supportive home environment are critical when children are very young because the majority of brain growth and major developmental milestones occur during this time. The first few years of life are when parents and the home environment have the strongest effect on brain development, with long-lasting consequences for school and beyond.^{3,24-25}

Language-rich interactions between parents and children not only strengthen the parent-child relationship but also stimulate children’s cognitive and linguistic development.²⁴ Having books at home and reading and talking to children—even very young infants—influences children’s development of language and literacy skills.^{3,26} Children whose parents talked to them frequently and used a variety of words when speaking to them when they were very young, for example, have larger vocabularies when they are older, compared with their peers whose parents spoke to them less.²⁷⁻²⁸

Similarly, parent-child interactions influence a child’s early understanding of math. Children exposed to more math-related words as toddlers have a stronger understanding of math by the

time they are preschool age.²⁹⁻³¹ Likewise, when caregivers engage young children in math-related activities, children learn more readily and are more likely to succeed in school.^{29-30,32}

For many parents, however, supporting their child’s early math development is a task laden with anxiety that stems from their own negative experiences with math, or from an uncertainty about how to help their children learn math. Anxiety about math can be passed onto young children, and these initial impressions can have lasting effects.³³ In addition, parents may do less math talk with their daughters than their sons in the first years of life, which could unintentionally contribute to gender differences in math in school.³⁴

Efforts to help parents build their children’s early math skills should therefore focus on three things: (1) broadening parents’ understanding of early math and its importance, (2) helping them to overcome their own anxiety about math, and (3) giving them concrete tools to help their children learn through daily activities.^{33,35} Parents are willing and able to help their children learn early math skills if they know how to do so.³⁶ Teaching parents how to do this is effective; young children whose parents were trained had better early math skills than children whose parents were not trained.³⁶

HOW CAN HEALTH CARE PROVIDERS INFLUENCE PARENTING AND THEREFORE THE DEVELOPMENT OF CHILDREN’S EARLY MATH SKILLS?

Health care providers have access to nearly all children and families prior to kindergarten. Parents see their children’s health care provider for regularly scheduled well-child visits that are most frequent in the first months and years of life. These visits foster trusting relationships between parents and health care providers, enabling health care providers to give families guidance and support.

Nearly all children have access to well-child care. Nationally, more than 95 percent of children are insured.³⁷⁻³⁸ Coverage is particularly strong for children from low-income families, many of whom receive health care through public programs such as Medicaid and the State Children’s Health Insurance Program, or S-CHIP.³⁷⁻³⁸

Children’s health care providers are trusted by parents. Because parents trust their children’s health care providers, they are likely to follow the providers’ recommendations. When families with young children in Washington State were asked whom they trust when they want information on how to support their child’s learning, development, and health, 71 percent of parents replied that they trust and want this information “a lot” from a health care provider, far more than any other potential source of information.⁴⁰



Parents want their child to be ready for kindergarten. When asked what types of early learning information they wanted, information about early reading and school readiness were some of the top answers.⁴⁰ At the same time, 93 percent said that they read or showed books to their child at least three times a week.⁴⁰ This suggests that if health care providers encourage parents to read with their children daily, many parents would do so, particularly since it builds on behaviors they may be doing already.

WHY IS REACH OUT AND READ A PROMISING APPROACH FOR PROMOTING CHILDREN’S EARLY MATH SKILLS?

Studies of Reach Out and Read show that when health care providers urge parents to read to their children, the parents’ feelings about doing so are more positive.⁴¹⁻⁴² Parents who participate in the program read aloud more often with their children and studies show improvements in young children’s language skills.^{17,41-42} In response to the growing research base on the importance of reading aloud to young children and the effectiveness of the Reach Out and Read model, the American Academy of Pediatrics issued a policy statement recommending that literacy promotion be a standard part of pediatric primary care.¹⁷

Reach Out and Read is growing rapidly and includes participating health care providers in a variety of settings. There are currently 6,200 Reach Out and Read clinics across the country (see Figure 2 for more details). In addition, more clinics join Reach Out and Read each month.

“Parents love Reach Out and Read. They appreciate the gift of a book and they are excited to learn that they can help their child learn early skills related to both reading and math from the time they are babies. Reading books together quickly becomes a favorite family activity, and they return for the next checkup eager for more.” -- Mary Ann Woodruff, MD, Tacoma, Washington

Number of providers and children who currently participate in Reach Out and Read

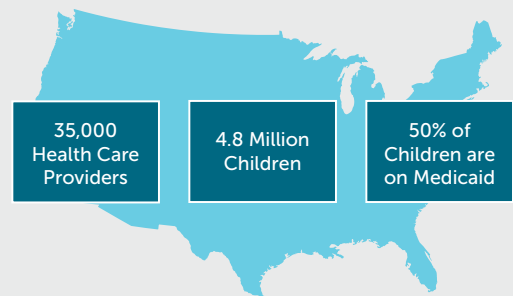


Figure 2

Reach Out and Read supports the natural integration of early math and literacy development by encouraging parents to read books with their children in a way that supports the development of both early math and literacy concepts. Integrating a focus on early math is a natural extension of the Reach Out and Read program, which encourages and supports parents and their children to read books aloud together. Most parents like to read or show picture books to their children, so this is an easy and fun way to support their child’s math and literacy development.

Initial testing of this integrated approach has been well-received by health care providers and families. Reach Out and Read is piloting approaches to integrate math and reading in select clinics in 9 states—Arizona, California, Minnesota, New Jersey, North Carolina, Oklahoma, South Carolina, Texas, and Washington. These approaches show promise for changing how parents support the development of their children’s math skills.³⁵

Next steps for Reach Out and Read

Leveraging the trust between parents and their children's health care providers has been shown to improve early language and literacy skills,⁴¹⁻⁴² and thus is a promising approach to help parents enhance their children's early math skills. Reach Out and Read is developing and implementing an integrated approach to early math that systematically helps parents support children's understanding of basic literacy and math concepts in an enjoyable and developmentally-appropriate way. In addition, given that Reach Out and Read's network of health care providers is large and growing, it provides a unique pathway to supporting large numbers of children long before they enter kindergarten, including a large percentage of children from disadvantaged backgrounds. By supporting children prior to kindergarten, Reach Out and Read has the potential to improve critical aspects of school readiness, and put our youngest and most disadvantaged children on a path toward success in school, work, and life.



ENDNOTES

- 1 Gopnik A., Sobel D. M., Schulz, L. E., & Glymour, C. (2001). Causal learning mechanisms in very young children: Two-, three-, and four-year-olds infer causal relations from patterns of variation and covariation. *Developmental Psychology*, 37(5), 620-629.
- 2 National Research Council. (2001). *Adding it up: Helping children learn mathematics*. Washington, DC: The National Academies Press. <https://doi.org/10.17226/9822>.
- 3 Institute of Medicine (IOM) & National Research Council. (2015). *Transforming the workforce for children birth through age 8: A unifying foundation*. Washington, DC: The National Academies Press.
- 4 Mullis, I. V. S., Martin, M. O., Foy, P., & Hooper, M. (2016). *TIMSS 2015 international results in mathematics*. Amsterdam: IEA.
- 5 Claessens, A., Duncan, G., & M. Engel. (2009). "Kindergarten skills and fifth-grade achievement: Evidence from the ECLS-K. *Economics of Education Review*, 28(4), 415-427.
- 6 Duncan, G. J., Dowsett, C. J., Claessens, A., Magnuson, K., Huston, A. C., Klebanov, P., & Sexton, H. (2007). School readiness and later achievement. *Developmental Psychology*, 43(6), 1428-1446.
- 7 Geary, D. C., Hoard, M. K., Nugent, L., & Bailey, D. H. (2013). Adolescents' functional numeracy is predicted by their school entry number system knowledge. *PLoS ONE* 8(1), e54651. <https://doi.org/10.1371/journal.pone.0054651>
- 8 Sarama, J., Lange, A., Clements, D. H., & Wolfe, C. B. (2012). The impacts of an early mathematics curriculum on emerging literacy and language. *Early Childhood Research Quarterly*, 27, 489-502.
- 9 Schoenfeld, A. H., & Stipek, D. (2011). Math matters: children's mathematical journeys start early. Report of the Pathways for Supporting Early Mathematics Learning Conference. Berkeley, CA.
- 10 Watts, T. W., Duncan, G. J., Siegler, R. S., & Davis-Kean, P. E. (2014). What's past is prologue: Relations between early mathematics knowledge and high school achievement." *Educational Researcher*, 43(7), 352-360.
- 11 Clements, D. H., & Sarama, J. (2014). *Learning and teaching early math: The learning trajectories approach*. New York, NY: Routledge.
- 12 Duncan, G. J., & Magnuson, K. (2011). The nature and impact of early achievement skills, attention skills, and behavior problems. In G. J. Duncan and R. J. Murnane (Eds.), *Whither opportunity? Rising inequality, schools, and children's life chances* (p. 572). New York: Russell Sage Foundation.
- 13 Bernstein, S., West, J., Newsham, R., & Reid, M. (2014). Kindergarten's skills at school entry: An analysis of the ECLS-K. Washington, DC: Mathematica Policy Research.
- 14 Siegler, R. S., Duncan, G. J., Davis-Kean, P. E., Duckworth, K., Claessens, A., Engel, M., Susperreguy, M. I., & Chen, M. (2012). Early predictors of high school mathematics achievement. *Psychological Science*, 23, 691-697.
- 15 Mulligan, G. M., Hastedt, S., & McCarroll, J. C. (2012). First-time kindergartners in 2010-11: First findings from the kindergarten rounds of the Early Childhood Longitudinal Study, Kindergarten Class of 2010-11 (ECLS-K:2011) (NCES 2012-049). Washington, DC: U.S. Department of Education, National Center for Education Statistics.
- 16 Karoly, L.A., Kilburn, M.R., & Cannon, J.S. (2005). *Early Childhood Interventions: Proven Results, Future Promise*. Santa Monica, CA: RAND Corporation. <https://www.rand.org/pubs/monographs/MG341.html>.
- 17 American Academy of Pediatrics. (2014). Policy statement. Literacy promotion: An essential component of primary care pediatric practice. *Pediatrics*, 134(2). doi: 10.1542/peds.2014-1384

- ¹⁸ National Research Council. (2009). *Mathematics learning in early childhood: Paths toward excellence and equity*. Washington, DC: The National Academies Press. <https://doi.org/10.17226/12519>
- ¹⁹ Sarama, J., & Clements, D. H. (2009). *Early childhood mathematics education research: Learning trajectories for young children*. New York: Routledge.
- ²⁰ Ginsburg, H. P., Inoue, N., & Seo, K. H. (1999). Young children doing mathematics: observations of everyday activities. In J. V. Copley (Ed.), *Mathematics in the early years* (pp. 88-89). Reston, VA: National Council of Teachers of Mathematics.
- ²¹ Seo, K. H., & Ginsburg, H. P. (2004). What is developmentally appropriate in early childhood mathematics education? In D. H. Clements, J. Sarama, and A. M. DiBaise (Eds.), *Engaging young children in mathematics: Standards for early childhood mathematics education* (pp. 91-104). Mahway, NJ: Lawrence Erlbaum Associates.
- ²² Kipping, P., Gard, A., Gilman, L., and Gorman, J. (2012). *Speech and language development chart* (3rd ed.). Austin, TX: Pro-Ed.
- ²³ Janzen, J. (2008). Teaching English language learners. *Review of Educational Research*, 78, 1010-1038.
- ²⁴ Center on the Developing Child, Harvard University. (2017). Brain architecture. Retrieved from <http://developingchild.harvard.edu/science/key-concepts/brain-architecture/>.
- ²⁵ The Urban Child Institute 2017. Baby's brain begins now: conception to age 3. Retrieved from <http://www.urbanchildinstitute.org/why-0-3/baby-and-brain>.
- ²⁶ Evans, M. D. R., Kelley, J., & Sikora, J. (2014). Scholarly Culture and Academic Performance in 42 Nations. *Social Forces*, 92(4), 1573-1605.
- ²⁷ Hart B., & Risley, T. R. (1995). *Meaningful differences in the everyday experience of young American children*. Baltimore, MD: Paul Brookes Publishing Company.
- ²⁸ Weisleder, A., & Fernald, A. (2013). Talking to children matters: Early language experience strengthens processing and builds vocabulary. *Psychological Science*, 24(11), 2143-2152.
- ²⁹ Berkowitz, T., Schaeffer, M. W., Maloney, E. A., Peterson, L., Gregor, C., Levine, S. C., & Beilock, S. L. (2016). Math at home adds up to achievement in school. *Science*, 350, 196-198.
- ³⁰ Levine, S. C., Suriyakham, L. W., Rowe, M. L., Huttenlocher, J., & Gunderson, E.A. (2010). What Counts in the Development of Young Children's Number Knowledge? *Developmental Psychology*, 46, pp. 1309-1319.
- ³¹ Pruden, S. M., Levine, S. C., & Huttenlocher, J. (2011). Children's spatial thinking: Does talk about the spatial world matter? *Developmental Science*, 14, 1417-1430.
- ³² Van Voorhis, F. L., Maier, M. F., Epstein, J. L., & Lloyd, C. M. (2013). 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. New York, NY: MRDC.
- ³³ Cannon, J., & Ginsburg, H. P. (2008). "Doing the math": Maternal beliefs about early mathematics versus language learning." *Early Education and Development*, 19(2), 238-260.
- ³⁴ Chang, A., Sandhofer, C.M., & Brown, C. S. (2011). Gender Biases in Early Number Exposure to Preschool-Aged Children. *Journal of Language and Social Psychology*, 30(4), 440-450.
- ³⁵ Harris, B., Petersen, D., & Smither-Wulsin, C. (2017). Issue brief: Integrating mathematical thinking into family engagement programs. Princeton, NJ: Mathematica Policy Research.
- ³⁶ Starkey, P., & Klein, A. (2000). Fostering parental support for children's mathematical development: An intervention with Head Start families. *Early Education and Development*, 11(5), 659-680.
- ³⁷ Barnett, J. C., & Vornovitsky, M. S. (2016). *Current population reports, P60-257(RV), Health insurance coverage in the United States: 2015*. Washington, DC: U.S. Government Printing Office.
- ³⁸ United States Census Bureau. (2015). American Community Survey 1-Year Estimates, 2015. Age by Health Insurance Coverage Status. Retrieved July 2016 from <https://factfinder.census.gov>.
- ³⁹ Bright Futures. (2017). *Recommendations for preventive pediatric health care: Periodicity schedule*. Elk Grove Village, IL: The American Academy of Pediatrics. Retrieved from https://www.aap.org/en-us/Documents/periodicity_schedule.pdf.
- ⁴⁰ Golan, S., Spiker, D., Petersen, D., Mercier, D., Snow, M., & Williamson, C. (2008). Parent voices: A statewide look. Washington State Department of Early Learning Parent Needs Assessment: Phone Survey. SRI Project 18252. Menlo Park, CA.
- ⁴¹ Golova, N., Alario, A., Vivier, P., Rodriguez, M., & High, P. (1999). Literacy promotion in a primary care setting: A randomized, controlled trial. *Pediatrics*, 103(5), 993-997.
- ⁴² High, P., LaGasse, L., Becker, S., Ahlgren, I., & Gardner, A. (2000). Literacy promotion in primary care pediatrics: Can we make a difference? *Pediatrics*, 105(4), 927-934.



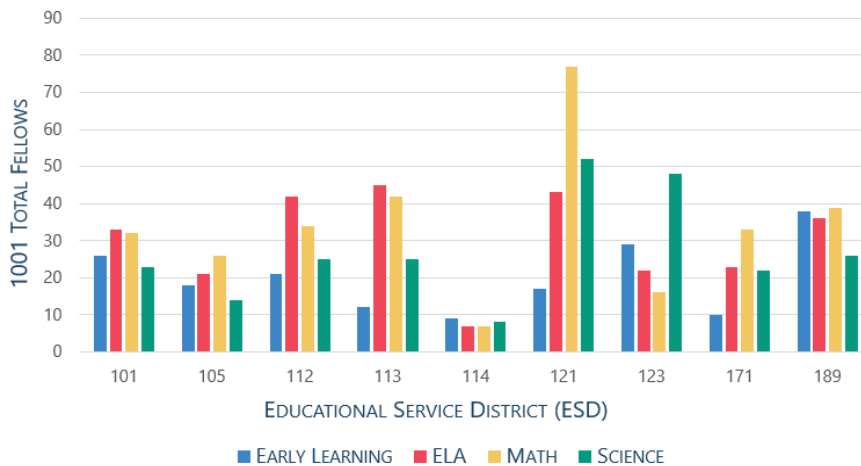


Washington State Early Learning Fellows

A statewide network of leaders dedicated to making systemic change in early learning

According to fall 2018 WaKIDS data, 45.7% of five-year-olds in Washington State are exhibiting skills consistent with national school readiness widely held expectations. A recent data study by OSPI found a strong, positive correlation between readiness at kindergarten and performance on 3rd grade English Language Arts and Math Smarter Balanced Assessments. AESD Early Learning Coordinators, in partnership with OSPI, have implemented Early Learning Fellows to build leaders within early learning (P-3) communities who are dedicated to strengthening and supporting early learning practices and programs.

WHERE ARE THE 2019–20 NEW AND RETURNING FELLOWS?
FELLOWS BY ESD (DISTRIBUTED BY CONTENT AREA)



Who are the Fellows?

P-3 Teachers	75
Special Education Teachers/Specialists	31
Classroom Coaches	30
Administrators	12
Early Learning Providers	17
Other (coordinators, trainers, higher ed)	17
2018/2019 Total Fellows	182

Participating Organizations

- 78 School Districts
- Child Care Aware of Washington
- Department of Children, Youth, and Families (DCYF)
- County Libraries
- Higher Education Institutions
- ECEAP
- Head Start

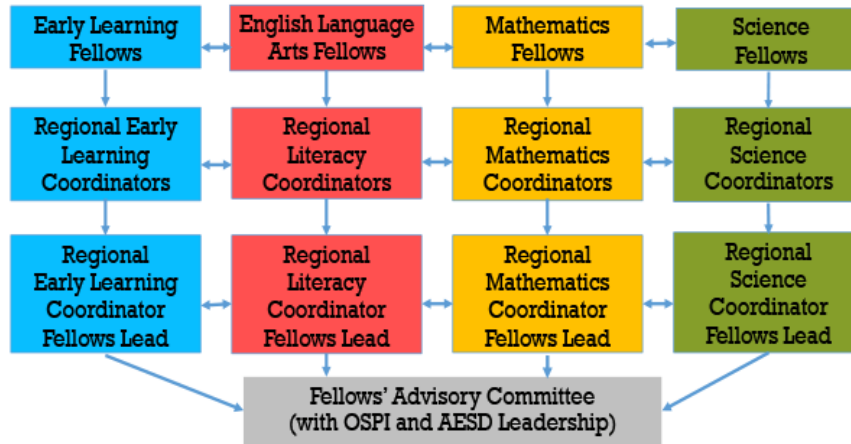
“I’ve been able to grow my skills and capacity to teach early math skills as a result of working with the Early Learning Fellows. Our work has allowed me to learn developmentally appropriate methods for teaching math and then share my learning with other teachers in my district.”

- Jennifer Gonzalez, Preschool Teacher, Cheney School District



Washington State Early Learning Fellows

A statewide network of leaders dedicated to making systemic change in early learning



The Fellows' Network is a group of instructional leaders convened by the Office of Superintendent of Public Instruction (OSPI) and the Association of Educational Service Districts (AESD) to support district and community implementation of state learning standards in mathematics, English Language Arts (ELA), science, and the Early Learning Guidelines. The Network has steadily grown since its inception in 2013 to include more content areas and instructional leaders.

As the newest content area, early learning coordinators from each ESD are implementing the fourth year of Early Learning Fellows. Each region has selected Fellows through an application process, totaling 182 across the state. Fellows attend four convenings throughout the year to receive shared professional development in early childhood content and leadership practices. These experiences kickstart their commitment to work with district administrators and/or organizational leadership to develop and implement action plans, outlining specific implementation steps for moving an initiative forward within their educational setting.

Through the Fellows network, coordinators have been able to provide cross agency collaboration and professional development that successfully connects the K-12 system, early learning educators, and informal educators from across the state. In addition to facilitating the Fellows' convenings, early learning coordinators provide ongoing support and technical assistance with implementing action plans. Action plans consist of strengthening instructional practice to meet the needs of all learners, supporting teachers and colleagues, collaborating with and engaging families, creating resources, providing job-embedded coaching, and other leadership tasks related to improving early learning education.

Early learning coordinators are directed by a statewide Fellows' Advisory Committee to ensure coherence in leadership across the state. Quantitative and qualitative data is collected and reviewed through a statewide evaluation system to monitor quality and consistency of professional development. According to recent survey data, 97% of the Fellows indicated that participating in this professional development opportunity has prepared them to try something new in their professional practice, and 89% of Fellows indicated they would share information from the Fellows work with colleagues.

"I appreciated the chance to ask questions and dive into solutions for some of the issues we have been running into with Teaching Strategies GOLD. It was nice to have the opportunity to talk with other kindergarten teachers about what they are doing in their districts."

-Kindergarten Teacher, Early Learning Fellow



Making Math Fun: Sound to Harbor's Monthly Math Kits

thurstontalk.com/2019/04/05/making-math-fun-sound-to-harbors-monthly-math-kits/

April 5, 2019



Facebook65 Tweet0 Pin0

Every month a special kit is delivered to each of the Sound to Harbor Early Learning Programs Classrooms throughout the region. The monthly math kit, an exciting surprise for the whole classroom, comes filled with games and ideas to supplement the regular math curriculum. The monthly math kits are one of the ways Sound to Harbor is supporting preschool students to succeed by helping them build strong math foundations.

What kind of math can a three- to five-year-old learn? A lot, actually. Everything they do involves math. Much of their play centered learning is filled with math concepts. The teachers and teacher assistants (TAs), support the students by recognizing the math in their play. Then, they help them

connect the play to math concepts and vocabulary, giving the students a strong mathematics foundation for their future learning.

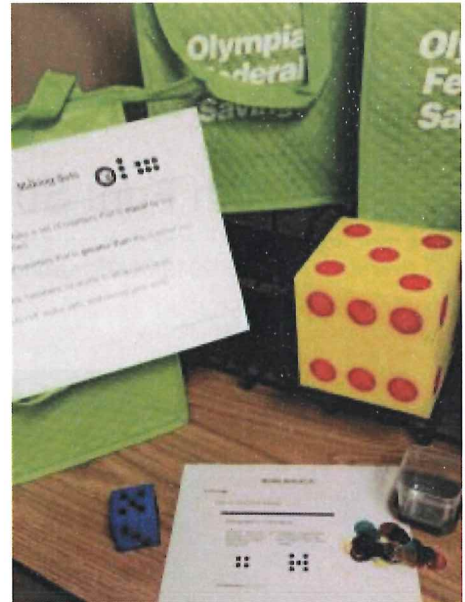
Simple block building structures are an opportunity to teach words like symmetrical. Counting and arithmetic are built into simple tasks and chores like setting places at a table. There are so many opportunities in early learning for children to explore math, but sometimes it's fun to add new things into the mix. That's where the monthly math kits come in.

Every month, Early Childhood Education (ECE) Instructional Coaches Holly Porter, Avis Shrestha and Michelle Thurman, build 35 kits, one for each classroom across the Sound to Harbor District. Each kit focuses on one specific theme or idea which has a basis in math, such as sorting, patterns, measurements, counting and arithmetic, and geometry. The math kits also include games that often fit well with popular children's stories.

However, though the monthly math kits are focused around math concepts, the learning attached to them is much more comprehensive. Students build on their language and vocabulary skills with the kits. Using manipulatives like Unit blocks and Magna-tiles help students visualize math, and also improve their fine motor skills. Many of the kits blend in physical science and engineering to help students see practical applications of the math concepts. And across all the kits, students are working together, problem solving, cooperating, and sharing, which helps them build their social skills.

Many items in the math kits are hand created by Porter, Shrestha and Thurman, sometimes with the help of TAs. This year, the TAs are benefiting from STEAM (Science, Technology, Engineering, Art, and Math) training, so math has been a big part of that. During part of their training, together they built less/more alligators, a simple tool which can be used to help children understand the concept of the greater than ($>$) and less than ($<$) math symbols. The tool is simply two pieces of wood attached at a 35-degree angle, with foam teeth and googly eyes. Magnets may be affixed to the back so the tool can attach to a white board.

Some items are specially purchased when they fit into the curriculum, like Tiny Polka Dot, an award-winning math game created by Olympia native mathematician, Dan Finkle, founder of Math for Love. The TAs got to play with Tiny Polka Dot cards during one of their STEAM trainings. "So, when we brought Tiny Polka Dot into the classroom, the TAs were the experts," says Thurman, "which really empowered them to have a more active role in classroom."



Sound To Harbor Early Learning Programs Monthly Math Kits
Subsizing: The subsizing monthly math kit helps students learn the skill of subsizing, which is telling the number of objects in a set, quickly, without counting them. Photo Credit: Holly Porter

Along with activities and games, the monthly math kit includes flyers to send home to families, so students can continue their math learning at home. The flyers help parents recreate games and activities from the classroom with everyday items found around the house, like buttons and muffin tins. It also gives ideas about how math concepts could be applied to household chores like setting the table, or sorting socks when doing laundry.

“We have some teachers and TAs that didn’t really feel successful with math when they were younger,” says Porter. “So, part of our job as coaches is to help the educators see how fun math can be, as they are showing students how much fun math is.”

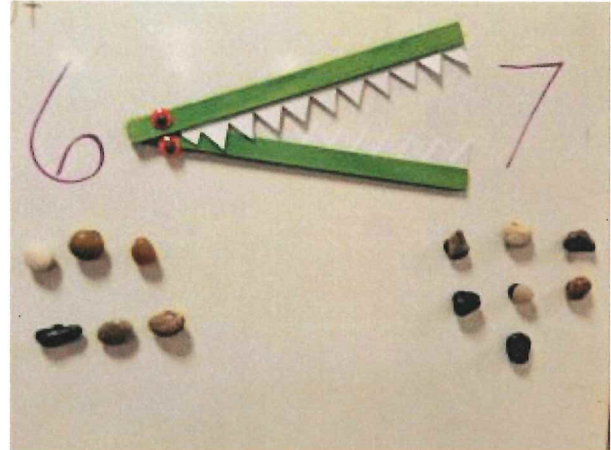
In addition to the monthly math kits, the three ECE instructional coaches keep an eye out for other learning and enrichment opportunities that will benefit teachers and students. Three teachers in Sound to Harbor are currently getting additional math support in their classrooms from the Cultivate Learning program through the University of Washington. In coordination with the ECE instructional coaches, three teachers applied and were accepted to a STEAM trunk math study, which provides additional enrichment kits to the classroom.

Looking at Sound to Harbor’s monthly math kits, filled with playdoh for building marble ramps, hungry alligator less/more tools, and color mixing wells with pipettes and water colors, math is starting to look like a lot more fun.

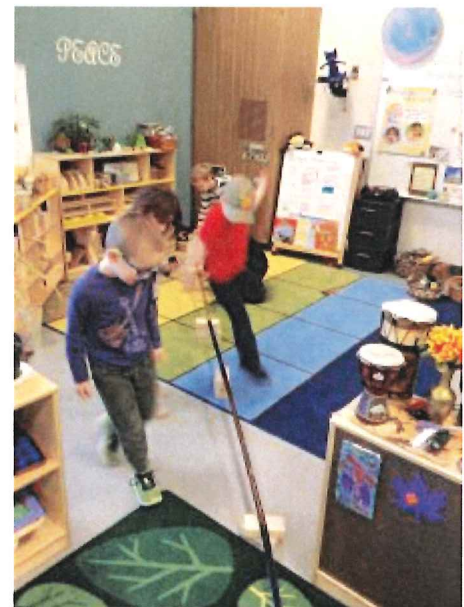
Sound to Harbor Early Learning Programs

Capital Region ESD 113
6005 Tye Drive SW, Tumwater
360-464-6800

Sponsored



The less/more alligator was part of a Sound to Harbor Monthly Math kit. It can be used to build on symbolic math skills. Photo credit: Holly Porter



Building with ramps helps children begin to understand concepts of physics. Photo courtesy: Sound to Harbor Early Learning Programs

Monthly Math Kit Color Wells

The first step with using the color wells is free exploration. Put out containers with *liquid watercolors in 2 or 3 primary colors (red, blue & yellow) and pipettes. Put a color well on a white tray and let children explore mixing colors. While children are doing this there are great opportunities for "math talk". Here are some examples:



Use words like: **more, less, how many, same/different, similar, match**

As children continue to use the color wells you can ask questions like:

- "Are there any other things in the classroom that are **similar** to this color?"
- "How can you make it darker/lighter?"
- "What do you think would happen if you added **more** yellow drops?"
- "**How many** blue drops will you **add**?"
- "What happened **after** you added more red?"
- "How could we keep track of **how much** blue you're adding? . . . if the child isn't sure. . . "Should we try a **tally**?"

Suggest further opportunities for exploration such as:

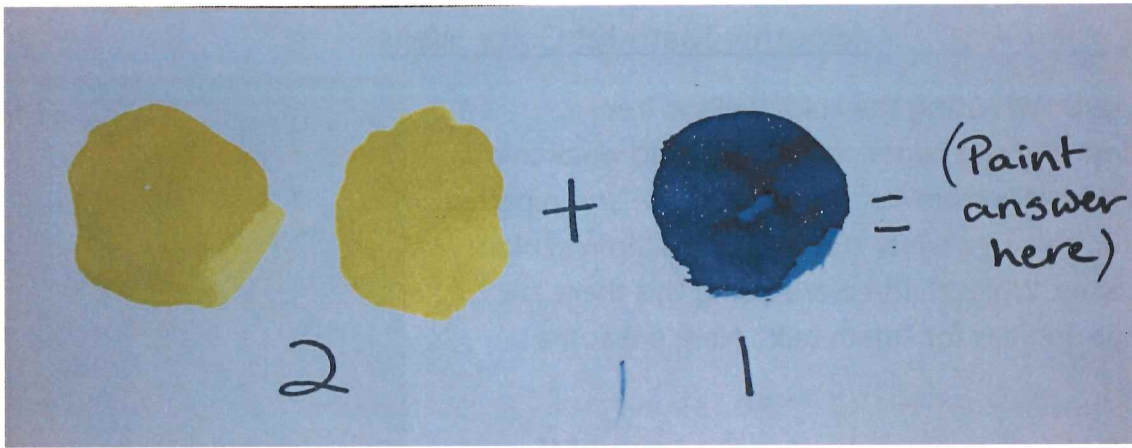
- "Can you **match** the color of your shirt?"
- "What would happen to your colors if you painted them on a **different** colored paper?"
- Offer a paint strip – "How could we make something **similar** to this?"
- "Let's **count** how many drops of red we need to add to the blue to make your favorite shade of purple."
- "If you want to, you can put color samples next to the **numerals** on this chart."
- "Would you like to create a color **pattern** for your friend to try and copy?"
- "Let's **graph** the color combinations you've been creating."

*If your center doesn't have liquid watercolors they can be purchased from Discount School Supply <http://www.discountschoolsupply.com/>

Please store the color wells and trays together – exploring colors is way more exciting on the white background of the trays!

For children who are ready for more of a challenge. . . .

Have children create simple addition problems to do themselves or with a buddy:



(Ignore the blue smear on this. . . I was painting with my left hand to try to make it look more child-made ©)

Do a graph of how the color changes as you add more drips. This one is very challenging, & will need adult support. Your coach has a template of the graph if you are interested.

Graphing Color Mixing

	+ Red
10 ○○○○○○○○○○	
9 ○○○○○○○○○○	
8 ○○○○○○○○○○	
7 ○○○○○○○○○○	
6 ○○○○○○○○	
5 ○○○○○○○	
4 ○○○○○○	
3 ○○○○	
2 ○○	
1 ○	
(Just Blue)	1



Sorting is an important skill for children to develop. It helps them with math, science & music – and keeping their room clean 😊!

To help your child learn to sort:

- Talk about how things are alike and different
- Collect things outdoors to sort into heaps – leaves that have 1 point/leaves that have lots of points, grey rocks/white rocks, little shells/big shells
- Mark off sections on a table with masking tape or loops of string – give your child objects to sort and then ask them how they decided what should go in each section.



La clasificación es una habilidad importante en el desarrollo de los niños. Les ayuda con las matemáticas, ciencia y la música – de igual manera les ayudara a mantener su cuarto ordenado 😊!

Ideas para ayudar a su niño(a) aprender a clasificar:

- Conversar de como algunas cosas son iguales y otras son diferentes
- Coleccione cosas afuera que pueda clasificar en grupo como: hojas que tengan una punta / hojas con muchas puntas, piedras grises/piedras blancas, conchas grandes /conchas pequeñas.
- En una hoja marque secciones con cinta adhesiva o un listón, dele los objetos a su niño (a) para que los clasifique y luego pregúntele como decidieron que deberían ir en cada sección.

4 Counting

Learning to count takes practice. As children start counting they are learning that:

- 1) The numbers have an order in which they are said. As they are learning, they will often skip a number. This is normal.
- 2) Then they learn to count objects one at a time. Counting objects in a short line is the easiest.
- 3) Later, they learn to count other arrangements of objects. The objects can be counted in any order and the total number stays the same.
- 4) At last, they learn that the last number counted tells 'how many' in the group.

*Our greatest national resource is the minds of our children.
-- Walt Disney*



Mathematics, Teaching and Learning
600 Washington St SE
Olympia, WA 98504

<http://www.k12.wa.us/>

EARLY MATH

All children and adults need math skills. Math is in everything we do, such as:

Telling time

Cooking

Sports

Shopping

Business dealings

Transportation

Being ready to learn math when starting kindergarten gives your child an important boost. Math skills are needed for success in school and in life. Parents and other adults can help children gain these skills.

1 2

3



3 The Importance of Numbers for Your Pre-school Child

Children naturally love numbers. They can learn about numbers in many ways through daily play. The more they explore counting, numbers, and shapes the better prepared they will be for kindergarten.

Important skills for children to know and be able to do before kindergarten include:

Saying the sequence of numbers (one, two, three, ...)

Counting objects up to 10 and answering, "How many?"

Comparing objects to say which is bigger or smaller, longer or shorter, lighter or heavier

Sorting objects by color, shape, or size

Naming the shapes

Research shows that the best indicator of later achievement in school is the number sense children have when they enter kindergarten. Research also tells us that young children can learn much more about number than we previously realized. It is important, then, to provide children, at an early age, with many experiences that will help them build their understanding of numbers.

It is essential that parents and caretakers have a positive attitude about mathematics when working with children. Many parents understand that reading is necessary for success in school. However, it is critical that parents realize the important role that number sense plays in a child's thinking and reasoning skills. When adults take an active interest in helping children see and use numbers in their world, children will show that they have a remarkable ability to reason and solve problems.



4 Making Math Fun

Children learn about the world around them through play and by talking with adults. Parents can watch their children at play and ask them questions such as:

"How many are there?"

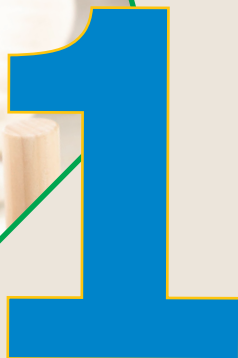
"Which is bigger?"

"Can you bring me two spoons?"

"Can we count with blocks?"

When reading to your child, treat it like a conversation and ask questions such as, "How many dinosaurs are there? If another dinosaur comes, how many would there be?" Asking, "How do you know?" is a good way to help children understand numbers.

Simple board games often help children learn math skills. Games can be a fun activity for the whole family. Playing with blocks is another fun way to count and compare objects. The more practice children have with numbers, the more they will develop their math skills.



Early Math Initiative Overview



About Reach Out and Read

At each well-child checkup from ages 6 months through 5 years doctors use a children’s book to help assess child development and parent-child interactions, while modeling for and teaching families how to promote literacy at home. Reach Out and Read is a national program with proven outcomes. When families participate, parents read aloud more often, reading together becomes a favorite family activity, and children have improved language and literacy skills.

Early Math Enhancement

Reach Out and Read Washington State is enhancing our program by integrating early math content. Our goal is to encourage families to develop positive attitudes toward math and the skills to support their child’s early language, literacy, and math development through the enjoyable experience of sharing books together.



Progress to Date and Future Activities

In 2017, we partnered with early math experts and a 9-member Medical Provider Advisory group to select concepts for the early math enhancement. After determining content, we created a training course and reference material for medical providers.

In 2018, ten medical clinics from around the state became pilot sites for the program. Medical providers at those clinics completed an early math training and began including information about early math concepts into their Reach Out and Read well-child checkups.

In 2019, these ten pilot clinics will be providing early math support to approximately 12,000 families in Whatcom, King, Pierce, Thurston, Yakima, and Franklin Counties. Looking forward, we will continue to work to secure additional funding to revise training and reference materials based on feedback from our pilot sites, expand to include additional program sites, and begin evaluating program impact.

Potential Impact

Reach Out and Read Washington State currently partners with over 2,000 medical providers at 236 medical practices in 30 counties. Reach Out and Read programs provided over 246,000 well-child checkups last year, and currently serve approximately 130,000 families annually. Integrating early math information and guidance into the Reach Out and Read program has the potential to reach a significant percentage of Washington families through an existing network of professionals who are experts in child development and trusted sources of information for families.

Reach Out and Read Washington State

Jessica Mortensen, Executive Director Dr. Mary Ann Woodruff, Medical Director
washington@reachoutandread.org • 206-524-3579 • www.reachoutandreadwa.org



where great stories begin™



Prioritized Early Math Content by Age with Guidance for Parents

Age of Checkup	General Guidance for Reading With Your Child	Key Math Concepts & Skills Children Will Learn	Math Specific Guidance: What to Model or Say to a Parent	Questions Parents Might Ask to Support Learning
6 – 12 months	<ul style="list-style-type: none"> Talk back and forth with your baby; make eye contact Point at, name, and count things Follow baby’s cues for “more” or “stop” Ask/answer questions 	COUNTING: Parent counts with 1:1 correspondence	Count while pointing to each object; may hold child’s finger to point as you say numbers.	Math: What do we notice? How many do we see? (parent answers)
		COMPARING: Parent describes quantity and size	Use comparing words like “more” and “less” and size words like “big and little” in the context of the story or pictures	Literacy: What is happening on this page? What is happening in this story? (parent answers)
15 – 18 months	<ul style="list-style-type: none"> Smile and answer when your child speaks or points Let your child turn the pages Keep naming and counting things Ask/help answer questions 	COUNTING: Parent and child together count to 5 with 1:1 correspondence	Count up to 5, pointing to objects. Your child will begin to imitate and say numbers they know (any numbers, any order)	Math: How many do you see? Let’s count them by ones. Let’s see them in groups.
		SUBITIZING: Parent and child together recognize and name the number of items in a set of 2 or 3	Circle a group of objects with your finger, saying how many there are without counting them “there are 3 birds”	Literacy: What is happening on this page? What is happening in this story?
24 – 30 months	<ul style="list-style-type: none"> Let your child turn the pages Keep naming and counting things Talk about the pictures Ask questions about pictures, numbers, shapes, and story events Ask questions/respond to child 	COUNTING: Parent and child count together to 10, using 1:1 correspondence	Count together to 5–10 objects, pointing to objects as you count	Math: How many do you see? How can you count them?
		SHAPES: Child recognizes and names circles, squares, triangles	Describe shapes and trace with finger. “Here is a triangle, it has 3 sides” “This is a side, here’s a point…”	Math: What do you notice? What shapes do you see?
		SPATIAL RELATIONS: Child understands directional words about position (in, on, up, down), child follows simple directions related to position	Use words like in, on, up, down, under, as you describe pictures, and things in real world (pick child up/put child down)	Literacy: What is happening on this page? What is happening in this story?

Age of Checkup	General Guidance for Reading With Your Child	Key Math Concepts & Skills Children Will Learn	Math Specific Guidance: What to Model or Say to a Parent	Questions Parents Might Ask to Support Learning
<p>3 - 4 years</p>	<ul style="list-style-type: none"> Let your child turn the pages Keep naming and counting things Talk about the pictures Ask questions about pictures, numbers, shapes, and story events 	<p>COUNTING: Child counts to 10–20 and can start counting from a number higher than 1</p>	<p>Begin “counting on” (start at a number larger than 1 by subitizing a group, then count more. “I see 3, 4, 5 worms”)</p>	<p>Math: How many do you see? How can you count them? What do you notice?</p> <p>Literacy: What is happening on this page? What do you think will happen next?</p>
		<p>SUBITIZING: Child recognizes how many things in a set of 3–5 items without counting</p>	<p>Circle objects in groups and ask “how many”</p>	
		<p>COMPARING: Child compares groups of 1–5 similar size objects by matching or counting</p>	<p>Compare groups of 1 –5 similar sized objects by matching or counting. Ask “How many? Which has more?”</p>	
		<p>SHAPES: Child sees and names more shapes in the world;</p>	<p>Point out and describe complex shapes (rectangle, octagon, etc)</p>	
		<p>SPATIAL: Child follows simple directions related to proximity (under, beside)</p>	<p>Ask questions about objects’ positions related to each other (“which animal is under the table?”)</p>	
<p>5 years</p>	<ul style="list-style-type: none"> Let your child turn the pages Talk about the pictures Ask questions about pictures, numbers, shapes, and story events Relate the story to your child’s experiences 	<p>COUNTING: Child counts to tell “how many?” to 20 and beyond</p>	<p>Ask how many do you see? Can I listen to you count them?</p>	<p>Math: How many do you see? How can you use the picture to show your thinking?</p> <p>Math: Do you see any groups? How can you use the pictures to show your thinking?</p> <p>Literacy: What is happening on this page? What do you think will happen next, and how do you know?</p> <p>Literacy: What does this story remind you of in your own life or in another story? What was that like?</p>
		<p>SUBITIZING: Child “sees” a group has up to 5 objects without counting each individual object</p>	<p>How many do you see? How do you see them?</p>	
		<p>COMPARING: Child uses words (more, less, same) to compare groups up to 10 by counting, even when the group with “more” has smaller objects</p>	<p>Use the words “more, less, same/ equal” to compare groups with up to 10 objects by counting,</p>	
		<p>ADDING/SUBTRACTING: Child adds together or removes objects and describes how many are left.</p>	<p>“How many apples are there? If I eat one, how many are left?” “If I gave you two more, how many would you have?”</p>	

Final Grant Impact Report to the Allen Family Foundation

Grant period: January 1, 2017-January 31, 2019



About Reach Out and Read

The goal of our Reach Out and Read is to improve kindergarten readiness for all children, and to prioritize serving children in low-income families, children of color, and families where English is not the primary home language, with the hope of reducing the opportunity gap. At each well-child checkup, Reach Out and Read doctors give families a new book to take home and keep, and talk with parents/caregivers about how to share the book with their child. This interaction inspires and empowers parents to share books with their very young children at home and builds the foundation for a lifetime of learning. Repeat visits to the doctors' office grow families' home libraries and reinforce the benefits of sharing books together. Observing children interacting with books assists doctors to assess a child's developmental progress and learn more about the relationship between parent and child--giving the doctor valuable information that leads to additional support and coaching, where needed. Sharing books together also supports parent-child bonding, social-emotional development, and numeracy skills—all critical to brain development, learning, and building the skills needed for later success in school and life. Children who receive the Reach Out and Read program demonstrate improved language and literacy skills, and their parents report reading aloud to them more often.

Project Overview

We greatly appreciate the Paul G. Allen Foundation's support in the form of a 2-year \$550,000 grant for our project *Making Early Math Accessible: Doctors Supporting Families through Reach Out and Read*. The overall objective of our project was to increase the early math experiences of young children in Washington by enhancing the existing evidence-based, proven, Reach Out and Read program with math content.

Activities and Outcomes

We are pleased to report that we completed all milestone activities in our original application on schedule, and we met or exceeded our expected outcomes for each year of the project. The outcomes and results are listed below:

1. A Reach Out and Read math training and implementation plan is created, and initial pilot medical practices are selected by December 2017.

Our focus in the first year of the project was to engage Reach Out and Read staff with strong partners to develop this new program element. To gain expertise combining math and literacy interventions, we worked with two University of Washington Education professors who are actively "mathematizing" children's literature in other settings. We also aligned this project with Washington's Early Numeracy Pathway math standards, with content review and support contributed by the State Director of Mathematics at the Office of the Superintendent of Public Instruction (OSPI).

To assure that the training and implementation plan that we developed would work well across diverse medical practices, we engaged a leadership group of nine Washington Reach Out and Read doctors from across the state to form a Math Project Advisory Group (MPAG). In partnership with our consultants, ROR staff, OSPI, and the MPAG, we identified the core math concepts to share with parents. Then we

developed the training and materials to support medical providers as they work with families, including video vignettes showing medical providers providing the intervention to families. Our ROR staff team created the technical assistance supports and a plan for medical practices to implement the project, based on feedback from the MPAG. At the end of 2017, we selected 10 practices to implement and test the program in 2018. During 2017, we also partnered with Mathematica Policy Research to create the issue brief [Developing Math Skills in Early Childhood](#) that outlines the research-based rationale for including early math in Reach Out and Read as a strategy that can increase children’s early math skills.

2. Reach Out and Read providers in 4 Pilot Medical Practices integrate math concepts into their existing Reach Out and Read Program, delivering books and math-guidance to families with children from Birth-5 during regular well-child checkups.

In the second year of the project, our initial focus was training and preparing medical providers in ten medical clinics serving 12,000 families annually to implement the program. We exceeded the original goal of piloting the program in 4 locations due to the enthusiasm of our MPAG. Nearly all of them wanted to implement the project in their clinics! The medical providers completed the online training course we created with partners in year one of this project. We also created summary sheets and reference materials based on the training curriculum to assist the doctors in selecting developmentally-appropriate early math messages to integrate into each Reach Out and Read visit with families. Our staff provided professional development and implementation support to each clinic and their medical providers, so that they could successfully integrate this additional content into their service delivery. Program staff routinely monitored implementation and provided guidance and support as needed. We engaged frequently as a team to identify successes and challenges throughout implementation, using a Continuous Quality Improvement approach.

A strength of our project and implementation plan is that early math messages are fully integrated into the existing Reach Out and Read program, which traditionally focuses on language and literacy messages. Early math is not an “add on” or separate component, but rather is included along with other guidance for families about their child’s language and other types of development. Therefore, special “math” books are not required for providers to give early math advice to families—the doctors are trained to use any book. However, certain books that provide greater opportunities to showcase early math concepts and access to those are helpful to doctors learning to integrate this component. To facilitate medical clinic’s access to specific titles, we curated an early math collection in partnership with All About Books, one of our partner book vendors. This collection will be available indefinitely to Reach Out and Read medical offices integrating early math concepts into their visits with families and is available in both [English](#) and [Spanish/English](#) bilingually. The book is the main item given to families to support them in sharing math concepts at home. However, we also provided stickers for each book with early math messages to remind families to engage in “math talk” at home. Both the books and stickers were provided to medical practices with funding from this grant.

Next Steps

We are grateful to have had the opportunity to develop and begin to implement this project thanks to the funding support you provided. Initial results and feedback indicate that providers believe integrating early math content into Reach Out and Read is achievable, augments the program in positive ways, and is well-received by families who report back to their provider that they are engaging with their children around early math at home. At present, our Reach Out and Read colleagues in other states are also testing methods for integrating early math into our program model. We anticipate that over time, and with sufficient investment, early math will be fully integrated into the Reach Out and Read program.

This project was originally funded as a three-year project. In year three we intended to spread the pilot to a second set of clinics and continue to support the clinics who began the project in year two. We also intended to begin implementing evaluation components during the third year to begin to assess the efficacy of program implementation and impact on families. We are currently seeking funding to continue the project and implement the year 3 activities, as we described in our proposal to the Paul G. Allen Foundation. Thank you for providing the initial funding to help launch our program in this direction.

WHO IS SHERMAN STEAM?

We are a neighborhood school in Tacoma, Washington, with 430 students. In 2015, staff decided to undertake the challenge to become an innovative school. We are a STEAM school and our instructional model is Project-Based Learning.



MISSION STATEMENT

We, as a STEAM community, encourage critical thinking in a Project Based Learning environment to foster individual potential and respect for communities and cultures; providing students with the skills to be successful in the 21st Century.

PRINCIPAL: Christian Jordan **TEACHER:** Claudine Thompson
INSTRUCTIONAL COACH: Tara Edmond

Mrs. Thompson's Kindergarten

Bee Bots

STUDENTS:

Lila,
Audrey,
Naomi,
Lewis

These robots are in all of our K & 1 classrooms. Students use them to code and sequence patterns. Bee Bots were purchased through Tacoma Public Schools CTE department

STUDENTS:

Deacon,
Vaughn,
Max,
Lincoln,
June, KJ,
Jenna,
Cecelia

How Do I Find My Way?

This was a Project-Based Learning unit developed and taught by our Kindergarten team in the fall of 2019. Students explored how to find their way both with directions and mapping as well as navigating friendships. One part of the unit had students make glass bugs in our makerspace, then hide the bug in Tacoma for others to find. The students tracked their travels of the bugs hidden by all the students.

Outdoor Learning

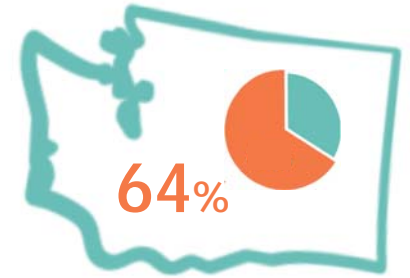
This year our staff made a commitment to outdoor learning. We all go outside and work with parent volunteers to help navigate the activities. We purchased tools for the students and set up systems for this to happen on 2 days per week. The bussing has been a combination of partnering with a high school and field trip busses. The trips have taken place at Point Defiance Park, about 2 miles from our school.

STUDENTS:

Marley,
Oliver,
Lily,
Jackson,
Claire,
Cece

THEORY OF CHANGE

WASHINGTON'S EARLY MATH COALITION



Early math achievement is one of the strongest predictors of later school and life success. Yet only 64% of children in Washington State arrive in kindergarten with the mathematics skills to start school ready.*

As local and state partners, we learn together and collaborate to positively impact children's early math development.

STRATEGIES

- Promote public awareness and attitude initiatives that build everyone's confidence and enjoyment of math.
- Maximize family activities that promote early math.
- Strengthen professional practice in early math.
- Increase organizational and system capacity for early math learning.

LONG-TERM OUTCOMES

- Adults see themselves and the children in their lives as mathematicians.
- Adults have confidence in and take enjoyment from math.
- Family experiences form a strong and expanding foundation for children's experience of math.
- Professionals provide appropriate, responsive skill development in math.
- Systems provide equitable opportunities responsive to diverse needs for early math learning that all can access.

GOAL

All children experience enjoyment, confidence, and success in their development of math ability from prenatal through 3rd grade and race and income are no longer predictors of early math success.



*as measured by the WaKIDS 2018 assessment.

PRINCIPLES OF ACTION

WASHINGTON'S EARLY MATH COALITION



As local and state partners, we learn together and collaborate to positively impact children's early math development.

LEAD WITH EQUITY

Prioritize those furthest from opportunity. Disrupt systemic and institutional racism by identifying and challenging practical, cultural, language, and structural barriers to opportunity.

CENTER FAMILIES AND EDUCATORS

Encourage children's math learning by taking an asset-based approach that builds upon the experience, efforts, and success of families and educators.

ORGANIZE A COLLECTIVE EFFORT

Include and balance the diverse interests of partners, while advancing a common vision, aligning efforts, and acting to improve outcomes for children.

FOCUS ON WHOLE CHILD AND FAMILY

Children's math enjoyment and learning is embedded in overall healthy development in the context of relationships and culture, geography, and language.

CULTIVATE ADAPTIVE SYSTEMS

Promote and be responsive to diverse needs of children, families, and professionals, learning from experience and evaluating data to inform decisions and recommendations.

INSIST ON QUALITY

Positive math outcomes derive from high-quality guidance, tools, and practices shown by community experience and/or research to be effective.