

Esso Family Math Project

From 1999 to 2004, team members at the Esso Family Math Centre, at The University of Western Ontario, have been building on the earlier successes initiated at Berkeley in the 1980's by creating resources, and training volunteers to work in community settings. In an effort to change parents' negative attitudes towards mathematics, as well as their beliefs concerning their inability to facilitate their children's mathematical development, a series of six Family Math sessions are offered to families. The goal is to help parents understand why mathematics is taught the way it is and to demonstrate how they can help their children to demonstrate how they can help their children to learn mathematical concepts through enjoyable and inexpensive activities that they can easily put into practice at home. High quality children's literature, is one essential component of this program

Because of high interest and demand for new content, another four weeks of the Early Years Program have been developed. The same format that has proven successful is followed. Mathematically rich literature continues to be integrated into the program.

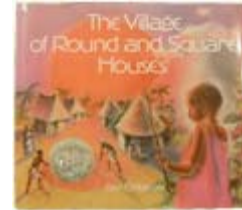
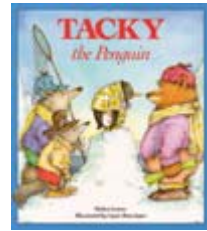
Tone

Books which provide mathematical and problem solving opportunities are made available at the beginning of each Family Math session. As families gather and wait for the session to begin, they take a few minutes to read a book, and discuss it. Leaders occasionally enter the discussion to help focus or extend the mathematical language and thinking. The opportunity to explore mathematical literature together as a family sets a positive tone for discussing, listening and learning throughout the session.

Modelling

Depending on the age level, stories are incorporated into the program between one and three times in a session. Esso Family Math volunteers model good reading, questioning and discussion practices that parents can repeat at home. Parents learn the value of listening to their children and asking questions that extend their child's thinking. The focus is on uncovering the math while enjoying the story.

Opening Parents' Eyes to Rich Mathematical Literature



Choosing Mathematically Rich Literature

- an engaging story – more than just counting books
- language that encourages mathematical understanding
- open ended rich problem contexts
- a springboard that enables families to explore, to conjecture, and to reason logically
- mathematics woven into appropriate illustrations
- multiple levels of mathematical thinking that address a range of age, developmental levels, and learning styles.

Strands →	Number Sense & Numeration	Measurement	Geometry & Spatial Sense	Patterning & Algebra	Data Management & Probability
Stories▼					
Everybody Needs a Rock	✓	✓	✓		
Counting on Frank	✓	✓		✓	✓
Tacky the Penguin	✓			✓	✓

Book List for Esso Family Math

Early Years Program

Baylor, Byrd. Everybody Needs a Rock. New York: Aladdin Paperbacks, 1985.

Boynnton, Sandra. Blue Hat, Green Hat. New York: Simon and Schuster, 1984

Inkpen, Mick. The Blue Balloon. New York: Little, Brown and Company, 1989

Keats, Ezra Jack. Over in the Meadow. New York: Puffin Books, 1971.

Lobel, Arnold. Frog and Toad are Friends. New York: Harper Collins, 1970.

Murphy, Stuart. The Best Bug Parade. New York: HarperCollins Children's Books, 1996

Murphy, Stuart. A Pair of Socks. New York: HarperCollins Children's Books, Rosen, Michael and Helen Oxenbury. We're Going on a Bear Hunt. New York: Simon and Schuster, 1989.

Walsh, Ellen Stoll. Mouse Count. Singapore: Harcourt Brace & Company, 1991.

Early Years Expanded Program Weeks 7 to 10

Adams, Pam. There Was An Old Lady Who Swallowed A Fly. Child's Play International, 2007

Lester, Helen. Tacky the Penguin. Houghton Mifflin, 2006

Numeroff. If You Give a Mouse a Cookie. Harper Collins, 1985.

Raffi. Wheels on the Bus. Crown Books, 1998.

Sayre. One is a Snail, Ten is a Crab. Candlewick, 2006.

Wood, Audrey. The Napping House. Harcourt Trade Publishers, 2000.

Yolen, Jane. How Do Dinosaurs Say Good Night?. Blue Sky Press, 2000.

Grades 2 to 5 Program

Clement, Rod. Counting on Frank. Milwaukee: Gareth Stevens Publishing, 1991.

Cuyler, Margery. 100th Day Worries. New York: Simon & Schuster, 1999.

Grifalconi, Ann. The Village of Round and Square Houses. New York: Little, Brown and Company, 1986.

Tompert, Ann. Grandfather Tang's Story. New York: Dragonfly Books, Crown Publishers Inc., 1990.

Background

Writers, such as Marilyn Burns, have introduced many educators to the benefits of using children's literature when teaching mathematics (Burns, 1992). Teachers now recognize the value, and many of the pitfalls, associated with using literature to enhance children's mathematical learning. Parents, however, are not necessarily aware of these benefits and limitations. This poster looks at some strategies for opening parents' eyes regarding the appropriateness of using rich mathematical literature to assist their children's mathematical development. By immersing parents in quality literature and the related engaging mathematical activities that can be repeated at home, mathematics education becomes a family value (Coates & Thompson, 1999)

Through Parents' Eyes PARENTS' OBSERVATIONS ON THE PROGRAM

"I have learned that math is everywhere. Math can be fun. It has a wider context than I realized – it's not just numbers. I never thought that patterns had anything to do with math. I think we overlook simple ideas in our daily lives that can be used to implement different math concepts. We can sing songs with math ideas and read math-related books. This program is a wonderful start to mathematics."

Esso Family Math Parent

"Math can be fun. I can teach my children math just like I teach them literacy skills."

Esso Family Math Parent

Links

The story is almost always extended. It may lead to the creation and discussion of further mathematical problems and/or it may lead to a related hands-on activity. The story may also appear and be presented as a song. Many of the stories refer to events and settings that are familiar to families, thus helping to connect mathematics to their everyday world. Several multicultural titles have been included to highlight the importance of mathematics for all cultures, and emphasize the mathematical accomplishments of all communities. The combination of stories, illustrations, discussions, and follow-up activities or songs serves to support a variety of learning styles thereby heightening the effectiveness of the learning situation. The opportunity to piggyback mathematical thinking onto the already existing routine of a bedtime story means that families can listen, talk and enjoy mathematics in a positive and stress free environment.

Extending

Recognizing that families need to repeat the mathematical learning situations after they leave the Esso Family Math sessions, several strategies have been incorporated to support families in finding rich math literature. Parents are given a list of the books used each week as well as suggestions for other appropriate titles. In some sessions only part of a book is read. This strategy is used to encourage families to seek out the book in their local library in order to finish it. Local libraries are contacted and provided with a list of all the books used in the program so that they can have them on hand for families. The program has been well supported by the local librarians, and in some cases library staff have visited Esso Family Math sites to share other books and offer free membership applications for the library. Some libraries have even hosted and organized the six-week program.

Opening Parents' Eyes to Rich Mathematical Literature



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