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Planning a Family Math Night-The How To's: A Checklist for Success

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Cover Page Footnote

*A special thank you to Pam Cornett, and teachers Barry Grace, Mrs. Barbara Goodman, and Dr. Shirley Meeks for always helping to organize all these family nights and man the booths at Indian Pines Elementary School and helping to make them a great success for the students, parents, and school as a whole.

Planning a Family Math Night- The How To's: A Checklist for Success

Introduction

Carlos and Aliria are excited to go with their parents to attend the family math night at their elementary school. They had attended other Family Night's at their school in the past and remembered they received free books and got to guess how many jellybeans were in the big jar on the table when they entered for a chance to win all of them. They got to see their teachers again that evening and played many math, science, and literacy activities with children's book. They collected "Pine\$" for each activity they did as a family and then they had to trade them in after for face painting, popcorn, sticker, and bookmarks. Going to family nights at school have become an exciting time for so many students and parents today in many elementary schools.

A Family Night--Defined and the Purpose

The Family Night Programs like the *Family Math* Night developed by Stenmark, Thompson, and Cossey (1986) to introduce parents and their children to good ideas that help them to improve their math skills and gain appreciation for mathematics. Family Math was first started as a course, which included six to eight sessions of an hour or two for parents and children to have the opportunity to develop problem-solving skills and to build an understanding with "hands-on" materials. The program originated from the Lawrence Hall of Science at the University of California, Berkeley as part of the EQUALS program. The EQUALS program has three strands- Awareness, Confidence, and Encouragement. Family math came out of teachers' need for ideas and materials for parents to use at home to help their children in mathematics. The Family Math Program then was created to focus entirely on parents and children learning mathematics together. School have adopted this program and organized Family Math Nights to encourage student success in mathematics as well as to inform parents about the math curriculum of their children. Family nights can help in many ways to involve and inform parents, bring families closer in constructive ways, allows parents, teachers, administrators, and kids to celebrate learning and send a message to kids that learning is important. This article focuses specifically on one schools efforts to improve literacy and a love for reading by involving kids and parents in a literacy night as a kick-off to a new reading program in the school. Taylor-Cox (2018) and Riddle (2015) both advocate engaging parents in schools by hosting family math night for families in communities. This article will discuss the rationale for such an event along with the ins and outs of showing how to develop your own family night in your school. Please see Appendix A for the Family Math Night Checklist.

Indian Pines Elementary Community School in Lake Worth, FL has held several family math and literacy nights which well advertised and done a few times a year, usually in the fall and spring of each year have been a great success. Family nights are a great way to involve parents and inform them of the new standards while learning and doing activities together as a family. Knowles, Harris, & Van (2017) talk about how important it is to have family nights and especially in diverse communities/populations that exists today across the USA. Indian Pines Elementary is one of those diverse populations and it has proven to be very effective in bridging the community. The author feels these family nights can help to build community while addressing norms, behaviors, and the culture of the school while informing parents of the State Standards that are being taught to their children at school.

A Sample Family Night as Part of a Partnership with a K-12 School and University

University and school partnerships are vital to an ever-changing society where education is a central component. There are many models for professional development schools across the nation. Professional development schools can help to raise the standards and educational level and experience of the students, teachers, preservice teachers, university faculty, administration, parents, and society as a whole. Professional growth is multifaceted, including the development of knowledge; growth in knowledge of teaching, learning, curriculum, and best practices; and assessment strategies for continuous improve. This paper will provide the reader with insights from all the people involved in planning a successful family math night (See Appendix A for the Checklist).

The Genesis Academy for Teaching Excellence (GATE) was one member of Florida's Academies for Excellence in Teaching. This academy was a preservice through inservice professional development model that facilitates the collaboration between Florida's Department of Education (DOE), Florida Atlantic University (FAU), and three counties in south Florida (Martin, Palm Beach, and St. Lucie). The premise of this partnership supports the goals to move classrooms of today toward the dynamic, 21st-Century classrooms envisioned by Blueprint 2000 (GATE, 1996). This program addressed the need to have universities assist in school restructuring efforts via school improvement plans and assists the college of education at FAU with its curriculum restructuring efforts. There were seven schools (elementary, middle, and high schools) in the three county area which worked with FAU and the Florida DOE. Each school had an FAU On-site Coordinator who was once a classroom teacher in each of the seven schools, and now serves as the coordinator paid by both the school and university. This person coordinates schedules and activities between teachers and students for the school and FAU. Each school also had one or more FAU liaisons (university faculty)

who spend one or more full days a week in each school to provide support, inservice, and preservice training. One of the major goals currently in the Florida schools is to assist teachers and administration in training and implementation of the new Florida standards (Florida Department of Education, 1996). Most states have now developed state standards for public PK-12 schools. Florida is not an exception. The Florida DOE, administrators, teachers, and university faculty are working very hard to implement these state standards as schools will be held accountable which started in 1999 with the Florida Comprehensive Assessment Test (FCAT) and now with the new FL Standards since 2015 which are a reflection of the Common Core State Standards. The Genesis Academy for Teaching Excellence was based at Florida Atlantic University and A.D. Henderson University School is jointly funded by the Florida Department of Education, using Goals 2000: Educate America Act P.L. 103-227 funds.

The remainder of this paper will focus on one GATE schools efforts to work with an FAU faculty member in strengthening their mathematics curriculum by implementing a Family Math and Science Literacy Night as part of its school improvement plan as well as inform parents of the new Florida *Sunshine State Standards*. Each GATE school is assigned one or more FAU liaisons to assist schools. Most schools based on need, have a faculty member with a particular discipline or background of expertise placed with them. Indian Pines Community Elementary School is a K-5 school in Lake Worth, Florida. The school has worked with other FAU Liaisons for two years of the GATE Program inception (beginning in 1994). The FAU faculty members had focused primarily on language arts and reading for the past two years. One faculty member had done some work with problem solving, reading, and mathematics. The Fall 1997 semester the school began work with the mathematics education faculty member at FAU. Each GATE site has different needs and based on those needs the FAU Liaisons are chosen to help support the schools' particular needs and staff development. Tuesdays were the day that the coordinator, liaison, and principal had agreed on for the day the faculty member would spend the day at the school meeting with teachers and alike working on restructuring issues and inservice as part of the school's improvement plan.

A component to this professional development endeavor was that in order to keep in line with developing good attitudes and perceptions toward learning math as well as to inform parents about the state standards plans for a *Family Math* (Stenmark, Thompson, and Cossey, 1986) Night has been organized. The Family Math Night's were usually held during a monthly P.T.O. meeting at the school, each school will need to decide the best time to offer them for families. The principal and liaison have worked closely with the faculty and coordinator to organize a Family Night centered on the state standards in Mathematics, Science, and Language Arts as well as technology as it relates and is used in the school.

The Family Night will serve a way to inform parents on the Florida Math Standards, what their child (ren) are learning in their math, science, and language-arts classes, and to promote positive attitudes toward math and science. Parents are asked to be more encouraging and involved in their child (rens) learning of mathematics and science. Riddle (2015) who puts together workshop on hosting a Family Math Night (FMN) at a school or community center believes this can really engage and inform parents. She believes that by using test data in a school, each schools can decide on needed areas of focus for the activities and games they use at their FMN. She feels schools need to collaborate with the PTA, community leaders, and possible business partnerships so to bring in funding and community buy-in for a successful event. She outlines ideas for advertising, setting up learning centers/stations, and staff involvement in her workshops. She contends that fact fluency is one common area of improvement needed. She feels that at a FMN participants should be involved in games involving operations, place value, data analysis and logical reasoning, all areas covering common core standards in schools today. She advocates at FMN that parents be exposed to games that use supplies typically found at home such as cards, dice, and dominoes to ensure follow up play with parents at home. Schools need to provide such game boards and handouts that families can use later at home to continue doing the math as a family.

The role the university professor played in planning the family math night was instrumental in that of the idea. As part of bringing parents into the school and familiarizing them with the new state standards as well as developing positive attitudes and perception toward learning mathematics was the main goal behind the event. Mohr, Schroeder, Jackson, Cavalcanti, Jong, Craig Schroeder, & Speler (2017) found in their research that it is important to invite parents to come to school and have them do the math with their children at the family night and to help them also confront their own attitudes toward math by participating in family math night activities. Their study found positive correlations between parents and students' attitudes toward math. Their findings revealed that parents' mathematics attitude significantly predicted students' attitudes toward math. The findings in their research shows that understanding the influence of parents' attitudes on students' attitudes toward mathematics, school efforts can be geared toward fostering favorable attitudes toward mathematics among parents when holding such family night events and having access to parents. The professor in essence planted the seeds and nurtured the growth of doing these family nights at this school and researches about attitudes and math anxiety research, which is critical in an age of STEM. The professor provided both resources and support for teachers and support staff. The GATE coordinator worked very closely with the university professor and then diligently delegated and empowered the teachers to assume ownership to the event. The coordinator in essence orchestrated the

family math night from start to finish. Anderson (2017) in her research that as part of the Youth for Astronomy & Engineering Program holding family math and science nights was critical in getting more young people interested in Science, Technology, Engineering, and Mathematics (STEM) fields. By holding family nights like this schools can help to provide a progression of opportunities for young people and their parents by attracting and identifying highly-engaged individuals for participation in more intensive experiences like math and science fairs and other competitions so to perhaps help to lead them into STEM careers in the future.

Goals:

The Family Math and Literacy Nights Program was developed to address Palm Beach County's #1 Goal of Increased Literacy and to promote the Florida Sunshine State Standards. This program familiarizes parents with the new standards and how teachers are teaching their children today. The emphasis/theme of the family nights has been on literacy, math, science, and technology so that parents see the critical need for these areas in our more advancing technological era. Parents attend the family nights with their children and as a family do math, reading, writing, science, and technology activities together at various booths. Parents can see which Sunshine State Standards are emphasized at each booth as well as see how children are learning these topics. Parents doing these activities with their children sends a message that math, literacy, and science are important. A major goal of the family nights is to increase parent involvement in our school. A free book is given to each child who comes to the family night. Placing books in the hands of our students relates to our school-wide goal to encourage reading/literacy. As this school followed the *Just Read* Program. Taylor-Cox, (2018) in her book offers many ideas, resources, and activities to use when putting together a family math night that address many of the Common Core Math Standards.

Planning:

The entire school is involved in the planning for the family nights. Our audience is parents and the children who attend the school. It is important that parents are familiar with the State Standards and also show children they value education. The family nights have been an on-going event each fall and spring term of the school year for the past three years. The fall usually has more of a literacy focus and the spring family night focuses more on mathematics. We try to have themes like "Preparing Kids for Y2K" or "A Kick-Off to Just Read." Teachers and students sign-up to host an activity booth. All booths are activities that a family can do together that relate to math, reading, writing, science, or the use of technology. Many activities integrate several many disciplines. Children

collect coupons or “Pines” as a monetary unit as they interact and do the activities at each booth. They redeem the “pines” for prizes like bookmarks, popcorn, stickers, candy, toys, and books. The school/university coordinator and university faculty liaison organized the planning. We have in fact developed a planning sheet which has been presented at conferences within the state. From all of this a group of teachers and the professor were presenters at the Florida Council of Teachers of Mathematics Conference. We are including copies of the planning form and evidence with brochures, monetary handouts, etc. for documentation purposes, please see the figures below.

Action:

This program was developed out of the need to involve parents in the School District’s #1 Goal of increasing literacy and to share the Florida State Standards. The action taken was to assign a date for each fall and spring to have a family night at the school to meet the above goals. Teachers, parents, and students are involved in the planning and implementation of this program. PTO helps out with the entrance tables for estimation/brochure/sign-in and prize redemption booths. This also supports the “Just Read” program that Indian Pines has been implementing for the past three years. Our focus has been to encourage children to read more, as well as to increase reading achievement. Our hope is that students will show proficiency on standard tests. Please refer to our Checklist for Planning a Family Night for our step-by-step approach to organizing this program. Please see the photos below and supporting materials for verification purposes (See Appendix A).

Evaluation:

We give out an evaluation form at the end of the family nights for parents, students, administrators, and teachers to complete. We have found that parents did not know about the Sunshine State Standards until participating in the family nights. Parents are also finding out how their children are being taught in school and what is emphasized. It also promotes the Literacy and “Just Read” programs which we have been advocating. We have had great success over the past several years. Parents send a message to their children that literacy, math, science, and technology are the keys to preparing students for the millennium and beyond. Each term we define and enhance our program. We have continuously seen the attendance increase at our family nights. Parent evaluations indicate that we have accomplished our goal.

Activities and Resources for doing Family Math Nights

Pinterest

<https://www.pinterest.com/explore/family-math-night/>

Family Math Night

<http://www.familymathnight.com/>

Family Math Night Games and Activities

<https://poway.instructure.com/courses/340/pages/family-math-night-games-and-activities>

Family Math and Lakeshore Learning

http://www.lakeshorelearning.com/general_content/free_resources/teachers_corner/great_ideas/1009_mathNight.jsp

Scholastic Resources for Family Nights

<https://www.scholastic.com/teachers/blog-posts/meghan-everette/hosting-common-core-math-night-free-manipulatives/>

Fredonia Math Night Resources

http://www.fredonia.edu/departments/math/Methods%20Class/index_files/Page363.htm



Figure 1 Estimate How Many M&M's are in the jar when families enter the school for the Family Night



Figure 2 The Different Rewards Booths with How Many Pines are required for each reward



Figure 3 Stickers and Signs for the Family Night

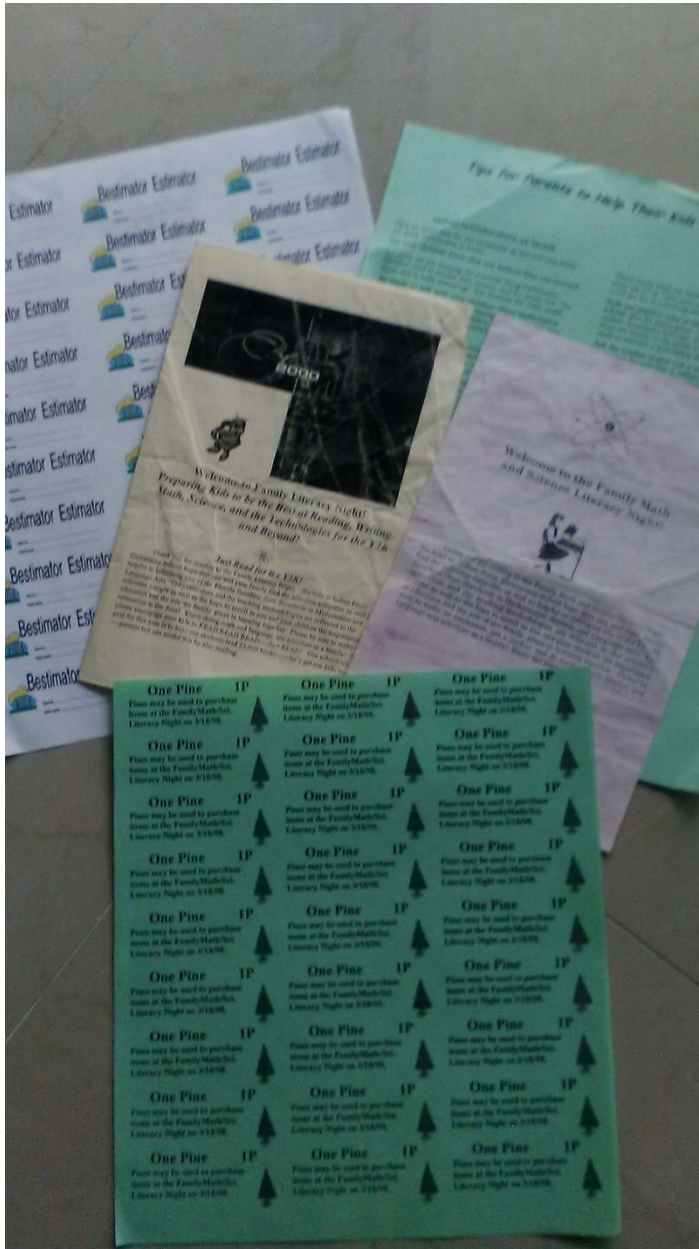


Figure 4 Brochures, Parent Handout, Pine Rewards and Estimation Slips for the Family Night

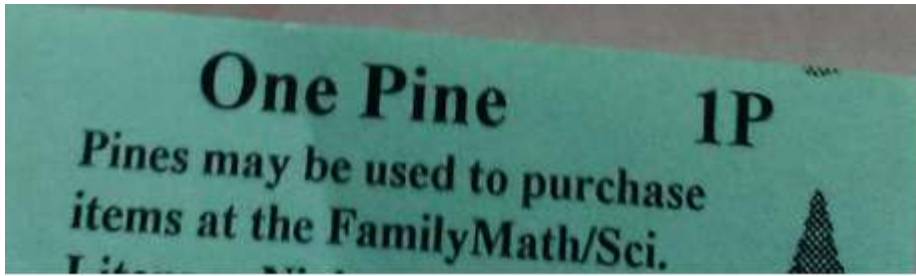


Figure 5 Pine Rewards given to Students when they visit the booths with their families

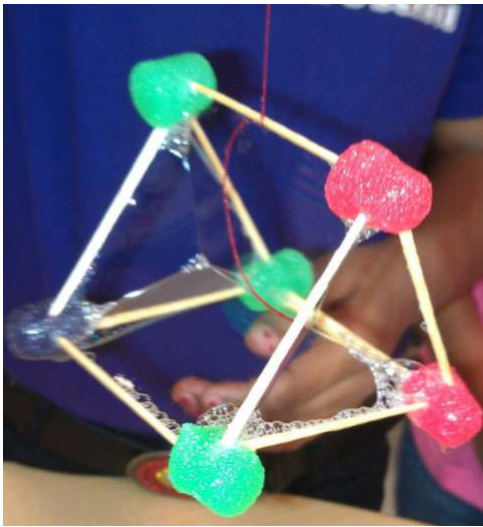


Figure 6 AIMS Activity Used at Family Night on Geoplanes to learn about Geometry and Science

Summary

The Family Math and Literacy Night's goals are to promote awareness/knowledge of the Sunshine State/FL Standards, increase parent involvement, and demonstrate the importance of math, literacy, science, and technology be taught at the school today. Getting parents involved in their children's education sends a message to the children that it is important. We want to help develop students who enjoy reading and feel confident in their ability to do math for the STEM world we now live in and their future success. For schools who are considering putting together Family Nights to get parents involved and to exposure them to the State Standards and how subjects like math are taught today, they should consider following the checklists and guidelines offered in this paper to help in putting on their own successful family night at their school.

*A special thank you to Pam Cornett, and teachers Barry Grace, Mrs. Barbara

Goodman, and Dr. Shirley Meeks for always helping to organize all these family nights and man the booths at Indian Pines Elementary School and helping to make them a great success for the students, parents, and school as a whole.

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Appendix A – Family Math Night Checklist

A Checklist for a Success Family Math Night

Items	Notes	✓ = Completed
Theme of Night		
Prior Advertising		
Brochure of Evening with Activity of Booth		
Estimation/Door Problem		

Sign-In/Volunteers at Table		
Theme Stickers		
Monetary System		
Book Sale/Arrangements with Vendor		
Arrangements with other Outside Guests/Donations		
Door Prizes/Door Problem Prizes		
Signs with State Math Standards of Booth		
Bulletin Board		
Signs/Posters		
Booths to Visit/Room Arrangement		
Redemption Booths for Prizes/Activities		
Balloons		
Pencils in Cups/Paper		
Evaluation Form for Guests		
Handouts-Tips for Parents		
Other:		

Content Booths and Prize Redemption Booths

<u>Content Booths</u>	<u>Teacher/Student</u>	<u>Notes</u>	<u>Supplies Needed</u>
Computer Lab.			
Prize Booths	Person in Charge	Notes	Supplies Needed
Face Painting			
Popcorn			
Bookmarkers			
Snow Cones			
Toy Prize			
Candy			
Free Book for Each Student			

About the Author:



Joseph M. Furner, Ph.D., is a Professor of Mathematics Education at Florida Atlantic University in Jupiter, Florida. His research interests are related to math anxiety, teaching to diverse learners, and best practices for teaching mathematics. Dr. Furner is the author of more than 80 peer-reviewed papers and according to *Google Scholar* has been cited more than 1000 times for his research. Dr. Furner has worked as an educator K-12 and teacher trainer for the past 31 years in New York, Florida, Mexico, and Colombia. Dr. Furner can be reached by email at: jfurner@fau.edu.