

Do Math with me!

Enjoy mathematics within family activities

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Abstract— Family quality time is an ideal atmosphere to nurture and develop mathematical concepts through regular daily activities. This Unbenounced to the public, everyday activities inherently include mathematics. The present treatise proposes activities involving mathematics within the confines of the family framework focusing on young children ages 4-6. Consequently, these foster interfamilial relationships and cognitive mathematical development.

Keywords- family; activities; mathematics; young children.

I. INTRODUCTION

By the 20th century, the parent-child relationship was recognized as a major influence on the emotional, psychological and social development of the young child [1]. As we all know, in today's multitasking world parents are extremely busy at work and therefore the amount of quality time they have with their children has dramatically decreased. We need to make larger efforts and dedicate more time to their education, not necessarily a formal education. Parents will find that in many cases education occurs in those moments where we are enjoying some togetherness. Therefore, maximizing family quality time can have multi-level ramifications. This is of greatest significance during time away from the educational system (holidays, vacations, etc.). During these periods a wide range of activities, which implicitly include mathematics, can enhance this influence.

Previous studies have shown that the relationship between development of informal knowledge, with support from adults, can influence the rate and breadth of development [2] [3]. In addition, it has been reported that many early mathematical skills develop without direct instruction, that is, using informal knowledge, which relies on information present in everyday environment [4].

Although mathematics is an integral part of our everyday life, most people are unaware of this. For example: the act of a child organizing one's room, setting the table, doing the laundry, etc. all requires sorting, which is a mathematical skill. In addition, cooking and baking with your child exposes him to such mathematical concepts as volume, weights and measures. Therefore, the awareness that parents must develop is the understanding of the interrelationship between informal learning and the early development of mathematical skills. Vacations are an apt time to stress to parents the potential for actively planning family activities which provide such benefits.

In addition to weaving math skills into family quality time, added benefits such as nurturing a favorable attitude towards mathematics, encouraging natural curiosity, self-confidence and strengthening family bonds. It must be stated that this effect is greatest when carried out within the context of daily activities [5]. This understanding can bring about adult supervised catalyzation of math skills development by creating an appropriate environment [6] [7] [8], suggesting that vacation periods may be an especially important time for parents to have an effect on the development of children's mathematical skills.

II. THE ACTIVITIES

The following are recommendations entailing examples of activities in which mathematics are a natural part, and can be amended according to the needs of each family. It is preferable that the child be involved both in the formation and execution of the chosen activity.

A. Activity 1- Plan Your Summer!

This is appropriate during the first days of summer vacation and entails a prioritized list of time distribution and preferred activities. This should be carried out by physically using a calendar together with your child in order to plan

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accordingly. In this way both short term and long term planning can be mutually decided, as well as singular (trip, birthday party, etc.), and repetitive events (swimming lessons, grandparent visitations, etc.).

This should be performed by firstly familiarizing the child with the calendar, displaying the dates of summer vacation and pose questions to the child about the calendar, such as:

July 2013							August 2013						
Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat
	1	2	3	4	5	6					1	2	3
7	8	9	10	11	12	13	4	5	6	7	8	9	10
14	15	16	17	18	19	20	11	12	13	14	15	16	17
21	22	23	24	25	26	27	18	19	20	21	22	23	24
28	29	30	31				25	26	27	28	29	30	31

Fig. 1

Which months are being talked about? How many squares in each line of the month? Are there squares with no numbers? How many days in each month? How many Sundays are in each month (specific days can be highlighted with a sticker or such)? Which day is designated as number 1? (draw a connection between the number, the day of the week and the date) Which number is associated with the last day of July? Which day of the week is it?

Secondly, plan your summer. The expectations of parent and child should be discussed, e.g.: on which day will we visit the grandparents/go to the movies, beach/ perform chores. At this point, the calendar should be plotted with stickers, colorful drawings or text correlated to the activities decided upon.

Revisiting the calendar should be done often throughout the summer vacation.

B. Activity 2 – Get To Know Phone Numbers!

Familiarize the child with the telephone numbers of immediate family members so that they can recognize them and verbalize them correctly.

Write these telephone numbers on notes. Fold them and place them in a hat from which the child can remove them, read the number and identify to whom they belong. Pay attention that the child reads the numerals in the proper order. It is important to put emphasis on the directionality. The child should then decide how and where to reference these numbers whenever they need to.

C. Activity 3 – Cooking With Math!

The kitchen has much to offer also in the way of math activities. In the kitchen children will come in contact with organization, preparation and measurements such as: weights, volumes, time, etc.

Using an agreed upon prepared recipe, first review it and have the child lead the organization of the ingredients and plan according to the recipe. Carrying out such a kitchen activity has inherent to it an understanding of sequential, organizational, spatial (shape of baking pan) and volumetric (half cup of sugar) comprehension. That is cooking with math.

D. Activity 4 – Math Trip!

There is value in familiarizing your child with the immediate surroundings of their home. Plan an excursion with your child to an agreed upon location close by. This can be done verbally or a map can be drawn together. Include writing your house number, and that of your neighbors, location of schools, kindergartens, playgrounds. Plot the path you intend to take to reach your destination, paying attention to directions, whether a road needs to be crossed, the location of crosswalks, etc.

Now you and your child are ready to explore the neighborhood.

E. Activity 5 – Measure Me, I'm Growing up!

Our children are constantly growing. We suggest to hang an "measuring tape" in their room and measure the child three times through the summer vacation: at the beginning of the vacation, in the middle and at the end of the summer vacation.

Measure the child's height, measure his weight, measure his foot, etc. Design a chart with your child and document the measurements in the chart. Discuss the many ways to display the information not necessarily in writing (e.g.: drawings).

Make it a family project and measure everybody in the family!

F. Activity 6 – Let's go shopping!

Supermarkets can be a mathematical luna park. It can be a great place for you and your child to incorporate mathematical thinking into your weekly chores. Starting from preparing a list, which involves planning and sorting. Once you get to the supermarket, you and your child will need to follow through with the list and consequently look for the products. This involves matching, counting, comparing, calculating which brand is cheaper. We are not aware of it at all but shopping includes many different mathematical skills and overall thinking skills that parents and children can enjoy together.

III. SUMMARY

Presented here are only a few examples of many possibilities for creating activities whose framework contains direct and indirect mathematical contexts. Of paramount importance is the awareness and motivation of the parent(s) to enhance their child's mathematical scope which will have a positive impact on their lives.

Weave mathematics into the daily pattern of your life.

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