Sharon Harris
Staff Development Plan
Summer Math Institute 2011

"Using Number Cubes to Teach Math"

I. Goal/ Objective:

- **The goal of this staff development is to show/teach math teachers the effectiveness of using number cubes as a manipulative, and to show the measurement by making a line plot, where the horizontal scale is marked off in whole-number units when teaching math.**
  Objective:
- **MS 5a Compare data and interpret quantities represented on tables and different types of graphs (line plot, pie chart, pictograph, bar graphs), make predictions, and solve problems based on the information (DOK 3)**
- **NCTM Standards: Data Analysis and Probability**

II. Math Concepts:

- **Interpret and analyze data**
- **Make predictions and solve problems based on given information**

II. Materials:

- **4 large dice number cubes (numbered 1-6)**
- **blank sheets of paper**
- **rulers**
- **pencils**
- **2 counters/per participant**

IV. Management:

A. Things to prepare ahead of time.
- **i. See Principal and set a date**
- **ii. Number cubes**
- **iii. 12 inch rulers**
- **iv. pencils (one for each participant)**
- **v. counters (2 per participant)**
- **vi. sheets of blank paper (approximately 10-12 inches long)**

B. Participant Grouping
- **i. Have four tables prepared with supplies available**
- **ii. Write numbers 1-4 on colored index cards.**
- **iii. As participants enter the room, give each an index card at random.**
- **iv. The numbered colored index card will determine where each participant will sit.**

C. Time Frame

i. The approximate time for this activity is 45 minutes.

V. Procedure

A. Introduction

i. Using prior knowledge, ask teachers several questions.

1. What are ways to collect data?

2. What are some ways to keep data?

3. Which graph is easier to use?

4. Which graph solves problems or make predictions better?

ii. Tell teachers that today they will be plotting data by using a line plot.

B. Content Activities

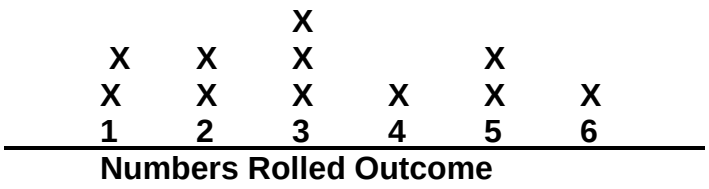
i. Make sure all groups have the materials needed.

ii. Show teachers how to draw a line using their rulers.

iii. Next, have teachers to number their line 1-6. Then, label the horizontal line as " Number Rolled Outcome".

iv. Tell teachers to take turns rolling the number cube twice within their group, then place a counter above the number they rolled above that number on their line plot.

Example:



VI. After the activity is completed, ask teachers to share the range of their activity.

Ask:

1. **What is the greatest number on your line plot? (6)**
2. **What is the least number on your line plot? (1)**
3. **Which number received the greatest number of rolls? (3)**

VII. Closure:

i. Ask teachers did they enjoy working with number cubes?

ii. Ask teachers to share if they think their students will enjoy using number cubes ?

iii. Ask teachers to share whether or not they would use number cubes in their classroom?

iv. Ask teachers to share other ways they could use number cubes as a manipulative.