

Title: Teaching Probabilities to Students with M&M Probability Bingo

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Greenwood Public Schools-9<sup>th</sup> Grade

### Objective

1. Teaching Objective(s): Pre-Algebra  
**Data Analysis & Probability**
  5. Interpret, organize, and make predictions about a variety of data using concepts of probability.
    - c. Make and list conjectures by calculating probability for experimental or simulated contexts. (DOK 3)

### Math Concepts

1. Basic concept of probabilities.

### Materials

1. 12 Game Boards (1 paper with boxes numbered 2-12, 1 paper for participants to create graph)
2. 12 M&M's per person
3. 1 pair of dice
4. Power Point (computer and projector)
5. 3 Tables (4 participants per table)

### Management

1. Ask principal or other administrator ahead of time for facility and permission.
2. Have 12 sets of 12 M&M's prepared
3. Have 12 game boards prepared
4. 12 total participants
5. Approximately 45 minutes

### Procedure

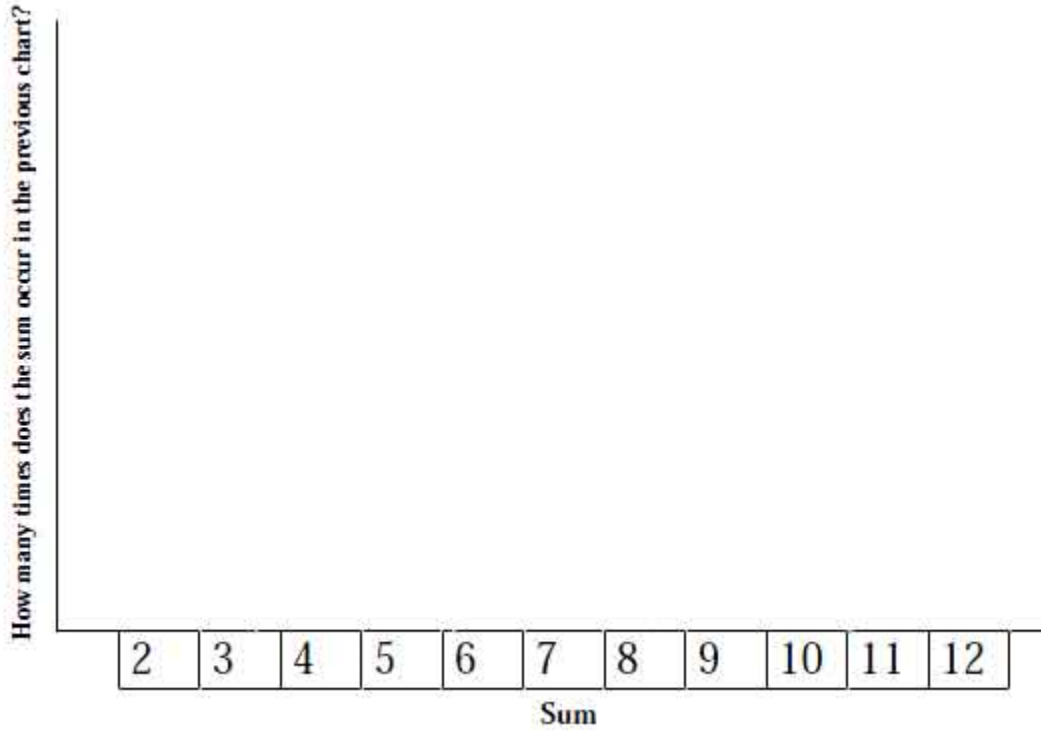
1. Introduce teachers to the basic meaning of probabilities and its use at the 9<sup>th</sup> grade math level. Explain the purpose of how playing the game M&M Probability Bingo may help introduce students to probability and all the factors with it.
2. Read instructions to M&M Probability Bingo. Explain how activity is to be played, what students are to do, and what teacher is to do.
  1. Students will take M&M's and place them on any number on their paper that has boxes labeled 2-12. Students are allowed to leave a box empty and can also place as many M&M's on one number if they choose to do so.

2. Teacher will roll a pair of dice. If any of their numbers come up then the student will remove the M&M's from that particular spot.
  3. Teacher will repeat rolls until a student has been able to remove all M&M's from their paper, making them the winner.
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3. Go through some practice rounds of the game with the participants. Ask participants questions about the activity and take questions about the activity.
  4. Have participants fill out graph and then develop a strategy to how to participate in the activity for one more round.
  5. Conduct one more round of the activity and see if participants have begun to create a strategy or if they keep the same train of thought.
  6. Close staff development out by explaining how the M&M Probability Bingo introduces students to probabilities and helps them think critical by creating their own strategy by using the probabilities of the dice rolls.
  7. Close session by fielding any questions, comments, or suggestions from the participants of the session.

\*See attachment for materials for activity.

## M&M Probability Bingo Chart

Instructions: Chart how many times each number is rolled when using the dice, then answer the following questions.



1. Describe how the chart changes from 2-12.
2. How does looking at this chart change your strategy for game?

## M&M Probability Bingo Game Board

<b>2</b>
<b>3</b>
<b>4</b>
<b>5</b>
<b>6</b>
<b>7</b>
<b>8</b>
<b>9</b>
<b>10</b>
<b>11</b>
<b>12</b>

***Probability Terms (will be shown on a Power Point)***

**factor**

**Definition:** Something, such as a circumstance or an influence, that contributes to the production of a result.

**Context:** Weather is an important *factor* to consider when planning a picnic.

**outcome**

**Definition:** Something that comes out of or follows from an activity or process; consequence.

**Context:** She flipped the coin ten times, and the *outcome* was five heads and five tails.

**percent**

**Definition:** One part in one hundred.

**Context:** He passed the test by answering 85 *percent* of the questions correctly.

**probability**

**Definition:** Fairly convincing, though not absolutely conclusive; intrinsic or extrinsic evidence of support.

**Context:** High moisture in the air and a dropping temperature led the meteorologist to conclude a high *probability* of snow.

**random**

**Definition:** lacking or seeming to lack a regular plan, marked by an absence of bias.

**Context:** The judges picked the winning number at *random*.