



## Waterloo Community Unit School District #5

Unit name: M & M Graphing

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Grade: 1<sup>st</sup> Grade

### Unit Information

#### Illinois Learning Standards

(and benchmarks for your grade level; you may also include national standards)

Illinois Learning Standard:

State Goal 10: Collect, organize and analyze data using statistical methods; predict results; and interpret uncertainty using concepts and probability.

B. Formulate questions, design data collection methods, gather and analyze data and communicate findings.

10.B.1b Collect, organize and describe data using pictures, tallies, tables, charts or bar graphs.

Grade Level Benchmark:

Collects, organizes, and analyzes data using bar graphs and pictographs.

#### Measurable Learner Objectives

- Students will recognize color words and organize a paper bar graph using an individual packet of M&M candies.
- Students will create a graph using the data collected in the computer program Graph Club.
- Students will communicate effectively in writing, verbally, and/or visually about the graph they created.

#### Rationale

This topic is about organizing and interpreting data and creating a bar graph in which results can be communicated. The students need to study this topic because it helps them organize data into a workable format so they can analyze the data and make predictions. As the children progress through their academic careers, they will be asked to organize and analyze a wide range of graphs. In the future by learning how to graph they will be able to analyze weather graphs and financial graphs etc. as they encounter them in their own daily lives. The experts in the mathematics field would say that this topic would fit in the area of interpretation of data and communication of graph results. The experts would also say that children should know how to analyze data and create a graph that can be interpreted. When you use data that is on the child's interest level they see value in what they are doing. By creating a graph with a product they are familiar with they are able to learn their color words while creating a data-gathering tool. After this lesson students will: be able to recognize color words and organize a bar graph using individual packages of M&M candies, create a graph using the data collected in the computer program Graph Club and communicate effectively in writing, verbally, and/or visually about the graph they created.

## Key Curriculum Components

<b>How will you engage the learner?</b>	<ul style="list-style-type: none"> <li>The students will be engaged by using a product that they are familiar with and know they will get to eat at the end of the lesson.</li> <li>The children will be engaged by my questioning and options in the lesson and choices they can make in creating their graph</li> <li>The children will be engaged by using a graphing program that was designed for primary grades and their cognitive and interest levels</li> </ul>
<b>Individual Student Assessments</b>	<p>Children will be assessed in one of three ways (see attached detailed rubrics):  <a href="#">Rubric1</a>   <a href="#">Rubric2</a>   <a href="#">Rubric3</a></p> <p>For my lower level students, they will be assessed on the graphing process and creating two components of their individual graph in the program Graph Club. The student will also analyze their graph orally.</p> <p>For my on-level students, they will be assessed as to how they created their individual graphs including all elements in the program Graph Club. The student will also analyze their graph orally.</p> <p>For my high students, they will be assessed by the criteria above and by how well they analyzed their data through a writing assignment.</p>
<b>Final Team or Project Based Performance</b>	Children at different learning levels will organize data using a familiar product and construct a graph using the program Graph Club. Ultimately, this graphing lesson will prepare the students for a graphing assessment that will be graded during first quarter of the school year.
<b>Teaching and Learning Events</b>	<ol style="list-style-type: none"> <li>During a learning center, four to five children each day will organize, develop and illustrate data on a paper bar graph format using individual packages of M&amp;M candies. Each package has a random selection of colored candies.</li> <li>Children will be given a tutorial on the program Graph Club so they are familiar with Graph Club features. As this process is taking place the teacher will observe students learning and identify learning rates and individual learning styles to provide the children with the appropriate assessment at the end of the lesson.</li> <li>Children then use the bar graph they developed and design a graph in the program Graph Club. Depending on learning levels, children will be assigned tasks (noted in the assessment section of this document) to do using their individual graphs.</li> <li>As the children are developing their graphs, the teacher guides the process and helps the children with stumbling blocks. The teacher has also assigned some children a friend to help them with the process.</li> <li>The children will then be assessed on their individual graph and analyzing process.</li> </ol>

## Differentiation Documentation Form

<b>Strategies</b> place an X in front of the differentiation strategy(ies) you are using.	<b>Differentiation Plans</b>
<b>Process Choices</b>	
X    Different levels of learning (Bloom's)	The children will <b>organize, develop</b> and <b>illustrate a graph</b> (both paper-based) and in the computer system Graph Club. The children will also <b>analyze</b> data. See the following Blooms levels covered in this lesson. <b>Synthesis:</b> organize and develop <b>Analysis:</b> analyze, graph <b>Comprehension:</b> illustrate
Different interests	
Learning styles (multiple intelligences)	
X    Different learning rates	The children will be developing their graphs based on different learning rates. Three assessments are designed based on observation, fluency of graphing and reading level.
X    Different questioning	
Different audiences, mentors, community involvement	Different questioning techniques will be utilized throughout the lesson.
Other	

<b>Product Choices</b>		
	Variety of ways to “show what you know”	
X	Using different levels of difficulty	Three different levels of difficulty based on cognitive levels and observation prior to lesson.
X	Variety of choices of products to create	Three different products will be developed. Also, each student was given an individual bag of M&M’s that contained random colors so each initial paper-based graph is different.
	Other	
<b>Content Choices</b>		
	Resources	
X	Multiple reading levels (& math, etc.)	The children are given the activity and product based on levels. The levels were based on observation and assessments such as the DRA.
X	Technology	The children will develop their individual graph in Graph Club.
	Individual and groups	
	Reteaching or exempting	
	Other	
<b>Extensions</b>		
	Acceleration:	The students can present their results to the class to show what they learned for acceleration.
	Enrichment:	The children discuss graph results as a class and call the M&M Mars to tell them results and which color candy was most frequently found. Also, in future lessons the children could pick a topic and graphing technique they would like to use in Graph Club then analyze their graph.
	Modifications	Modifications would be buddy pairing and teacher assistance, as needed.

Template format adapted from Rockwood Gifted Program