TAKE IT TO THE MAT

A NEWSLETTER ADDRESSING THE FINER POINTS OF MATHEMATICS INSTRUCTION

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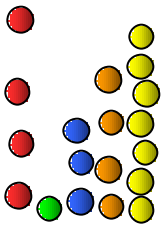
In the last issue of *Take It to the MAT* we looked at making tally charts and bar graphs to describe a set of data. In this issue, we will continue looking at bar graphs, other members of the bar graph family, and common mistakes made when using bar graphs.

Color	Tally	Count
Red	////	4
Green	/	1
Blue	///	3
Orange	////	4
Yellow	~~////~~ //	7

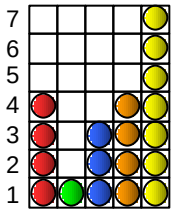
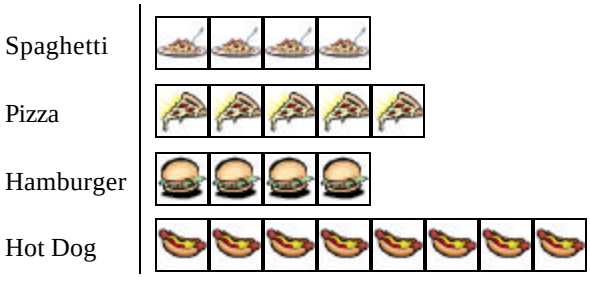
We return to our scenario of a student recording the colors of candies. The student has created a tally table, written the counts of the colors, and created a bar graph to visually display the data. (See the last issue for the graphs.) What else could the student have done?



Why not use the candies themselves? Great idea! Shown at right is an example of a student's bar graph with candies. What do you think? Which color occurs most frequently? It must be red, because it's the tallest bar. And there are almost as many orange as yellow.

Absurd? Of course it is, but kids do it all the time. This is the result of poor spacing and scaling. Another place this error can appear is in picture graphs. A *picture graph* is a type of bar graph that uses pictures or symbols to form the bars. For example, the picture graph at right shows students' favorite foods from a choice of four: spaghetti, hamburger, pizza, or hot dog. Which food was the most popular? Yes, students may think it is pizza—it has the longest bar.

Once again, we misinterpret the graph because the pictures are not scaled properly. While they are evenly spaced, unlike the candies above, they are not equal in size. The pizza slices are much larger than the hot dogs and thus appear more numerous, even though there are three more hot dogs than pizza slices.

When students make graphs, proper spacing and scaling must be maintained. If there are three more yellow candies than red candies, the yellow bar on the graph must be three units taller than the red bar. If there are twice as many hot dogs as hamburgers, the hot dog bar must be twice as long as the hamburger bar.

Correct graphs of this newsletter's examples appear at right. Grid paper was used to assist with the graph of the candies. The pictures of foods were placed on note cards or post-its.