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Classroom Graphs – All About Us!

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One of the most valuable skills you can teach your students is how to display information from charts and graphs. *USA Today* has been very successful using these techniques with their readers. Students need to develop an appreciation for charts and graphs when they are young so that they view these as tools and not impossible challenges. An added benefit of teaching graph/chart reading to young children is that they think it is FUN!

What kind of graph could possibly be more exciting to a class than a graph that is all about them? My class creates a new graph every Monday. That is frequent enough to keep their skills polished but not so often that they get bored with the work. In kindergarten the teacher might want to create just the framework for students' initial work with graphs, but by second semester of kindergarten or first grade, students are capable of creating their own graph after seeing you model the creation of a few graphs.

Starting Out

Start out by distributing one inch graph paper. Have the students write their name on the blank side. Be sure you have a sheet posted on the board so that you can model each step. Have them turn their paper vertically. Students should choose a dark colored crayon (no white or yellow) and draw a happy face in the bottom left corner. This face actually serves as a zero and helps kids define a starting point. We then put a 1 in the box directly above the 0. Put a 2 in the box directly above the 1. Continue counting and writing numbers until the child reaches the top of the paper. It doesn't matter how many boxes the child has marked (between 10 and 13) as long as she didn't skip any numbers. There is rarely a time when the top number would not ever need to be higher than ten.

Next Step

In the box next to the happy face write the letter Z. Next to that write a G, next to that an M, then a T, L, and K. Remind them that only one letter goes in each box (you can introduce blends later). I also encourage them to write capital letters because they are easier for the children to write and identify than lower case.

DO NOT tell the children the title of the graph until all of the letters have been recorded. That way, instead of children spending time thinking about what they are going to choose or guessing at words that begin with that letter, they will spend their time listening to the letters they are supposed to record.

Example: The letter Z, G, M, T, L, and K will stand for zebra, giraffe, monkey, tiger, lion, and kangaroo.

Helpful Hint – Students will want to offer suggestions for other animals you might not have chosen. Tell them that is a wonderful idea. When they makes their own family graph at home they are more than welcome to change their animals. Also, six choices seems to be a good number. More than six drags it out too far and makes it harder to keep track.

Once all of the letters have been recorded, introduce the title: *Zoo Animals*. Remind students that these words start with a capital letter because titles always start with capital letters. I show them how I

attempt to center the title at the top of my page. I quickly write the title on my model sheet so students can see where it goes, but I also write it larger on the board so they can copy the correct spelling. Once children know the topic, the classroom buzz begins as they start guessing what each letter might stand for. This is a great way for them to show that they know their beginning sounds, but since your time is limited, you need to quickly go through each letter telling the children what they stand for.

Helpful Hint – Once you have told them what each letter stands for the first time, tell them you are going to go over the animals one more time and this time you want the children to circle with their crayon which animal is their favorite. You want to do this for two reasons:

1. Many children forget what they chose so a quick glance at their paper will remind them.
2. Sometimes a graph will get out of control when several students in a row choose the same thing. Then others will change to that same response thinking that they now have the more popular choice.

I emphasize to the children that I can't wait to take the graph home to show my daughter what each person in my class has chosen so I really want them to tell me their real choice and not just their neighbor chose.

Beginning of the Year

When we first begin doing classroom graphs I will call out each animal category one at a time. Students who circled that choice will stand and we will count them all together. (Don't forget to count your vote – students love to know what your choice is!)

Once we have a total for the first animal category, students choose a color of crayon. We go to the first category next to the happy face and we count up however many boxes matches the total responses and draw a STOP LINE. The stop line is just a line across the top of the top box that reminds kids where to stop coloring. Then we are able to do a "quick color" which means we can quickly color all of the boxes from the letter to the stop line. If you don't do this, you will have meticulous *colorers* who will never finish as they try to color each tiny box perfectly.

Now we move to the next category and repeat the process. You may let kids change colors for each category or require they stay with the same color.

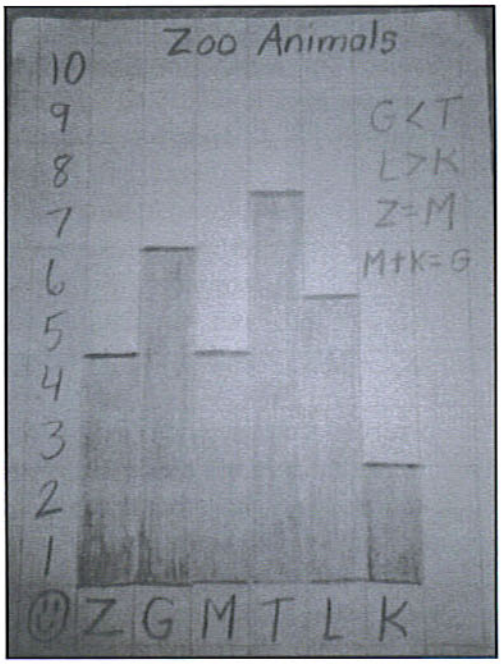
Helpful Hint – Be very careful when you get the first category that receives no choices. It is hard to get kids to skip it and leave it blank as you move on to the next category. Remind them numerous times to leave that particular category blank and be sure they are in the right column for their next stop line.

Later in the Year

Go around the room one by one and have each student give his choice. This will require your students to pay attention. It also gives them practice with hand/eye coordination as they will have to move back and forth between columns.

It is always a good idea to review totals periodically to be sure students are on the right track.

Working With a Completed Graph



Be very enthusiastic when the graph is completed by reminding students that this graph represents our entire class. This is a snapshot of our class. I encourage students to take it home and "teach" it to their parents.

When students first learn to read completed graphs I will ask questions such as:

- Which category has the most. Or the least?
- Which categories are about the same?
- Which categories didn't have any votes?

I then have students help me list the categories in order from the greatest to the least by recording the capital letters in order down the right side of the paper.

Once they are fairly proficient, I begin to ask for comparisons with questions such as:

- How many more was this item than that item?
- How many would this need to be more than that one?
- Which are even/odd amounts?
- What two items could you combine to be equal to another item?

Once children have learned the inequality signs (< and >), I will write two of the letters with a space between them down the right side of the paper and students will have to put the correct inequality sign in the middle. It is always fun to see who is paying attention when you have two categories that have the same number and you need to use an equal sign.

There are many other questions and comparison you can use when working with these graphs. You will be amazed how good your students will become at reading and using graphs. You will be creating an important math tool, and you and your students will actually enjoy the work! ■

Rena Pate teaches in Danville, Illinois. She has presented at several ICTM workshops, at NCTM regional meetings in New Orleans and St. Louis, and at the Annual NCTM in Indianapolis.

Helpful Approximations

16°C ≈ 61°F
or
28°C ≈ 82°F

Times 11

53 x 11 = 5___3 = 583.

72 x 11 = 7___2 = 792.

23 x 11 = 2___3 = 253.