

Math 6 - Act. 20: Which Month First?

Summary

This activity will help students understand the connection between real world data and its representation on a graph.

Group Size

Large Groups

Materials

- Laminated cards displaying the twelve months of the year

- Sticky notes (one per student)

- Graph paper (one per student)

Additional Resource

1000 Play Thinks: Puzzles, Paradoxes, Illusions & Games, "Birthday Paradox from Ivan Muscovich" (Workman Publishing)

Background for Teachers

Understanding the connection between real world data and its representation on a graph is sometimes difficult for students to understand. Participation in this activity helps students to discover that connection. This is also a great activity to use near the beginning of the school year to help students get to know each other better.

Intended Learning Outcomes

4. Communicate mathematically.

Instructional Procedures

Invitation to Learn

Read aloud *Bart's Amazing Charts* by Dianne Ochiltree.

Instructional Procedures

Explain that during each week, classroom privileges are given to students based on the month in which they were born. Inform the class that the rotation will begin with the month in which the most students were born, move to the month in which the next highest number of students were born, and continues in this rotation. Ask the students for ideas on how to record and collect this information.

While taking suggestions, guide the students to making a human graph.

Place month cards (see materials) on the floor.

Have each student stand in line behind the month of their birth.

Ask, "How can this information be remembered?" Suggest making a chart if the suggestion is not given.

Distribute a sticky note to each student and instruct students to write their name on it.

Write the months along the bottom of the board.

Let students place their sticky note in its appropriate month column.

Lead a class discussion about the rotation and decide on privileges.

Attempt to go on with another lesson by erasing the board, then stop and ask students how they can remember the rotation without leaving this up.

Guide students to the idea of recording the information on graph paper.

Have each student copy the information onto graph paper.

Curriculum Integration
Social Studies—population graphs

Extensions

Possible Extensions/Adaptations

Birthday Paradox

—You want to have a party at which at least two people share the same birthday (month and day). How many people do you have to invite so that the probability of two people sharing the same birthday is more than 0.5%? Remarkably, the probability of two people sharing a birthday is about .5 in a group of just 23 people. To calculate this probability, you have to look at the probability that every one has a *different* birthday. For a group of two people, the probability is extremely high — $364/365$ — that they will have different birthdays. With a group of three, the probability is not as high— $363/365$ —and, since the group of three still contains the group of two, the two probabilities are multiplied. Continue along this track until the probability of everybody in the group having a different birthday drops below.

Homework & Family Connections

Challenge students to find a graph in a magazine or newspaper. Then have them explain what the graph represents to their families.

Assessment Plan

Have students choose a topic appropriate for investigation whose results can be displayed in a bar graph. Have students collect the data and complete the graph.

Authors

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