

Math Lesson – Polling Activity

LESSON 3

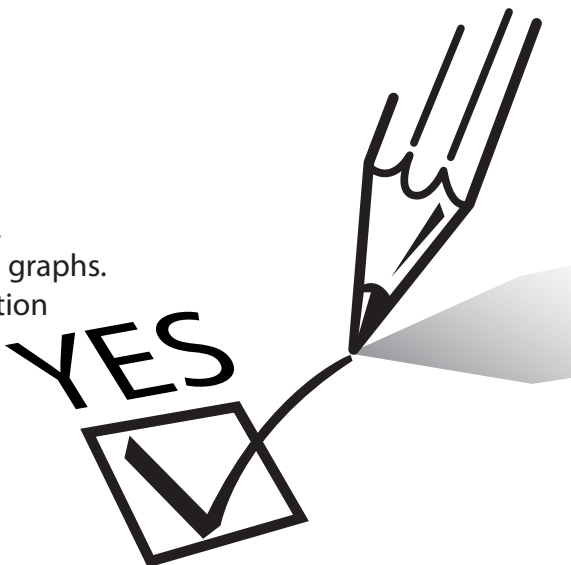
Objectives

The students will:

- Collect data using surveys.
- Analyze the data collected.
- Represent data by creating graphs.
- Communicate the information to a public audience.

Materials

- Student Handout: "Poll Questionnaire" (one per pair of students)
- Student Handout: "Poll Total Sheet" (one per pair of students)
- Student Handout: "Communicating the Results of our Poll" (one per student)
- "Once There Was and Was Not: A Modern Day Folktale from Armenia" book



National Standards Addressed

MATHEMATICS

- Data Analysis and Probability – Formulate questions that can be addressed with data and collect, organize and display relevant data to answer them.

- Communication – Communicate mathematical thinking coherently and clearly to peers, teachers and others.

Procedure

- 1. Introduce the concept of polling as a tool to understanding group opinions.** Remind students that the story "Once There Was and Was Not" is about a community group called the Agriculture Club. When any community group acts, one of the first steps is to decide what actions it will take. (For example, if a group in your school is trying to make the school look better, one of the first things the group needs to do is decide what part of the school it will improve.) Ask students: Since a community group has many members, how can you tell what most of the people in the group agree on? Explain that a poll is a useful way to discover this information.

Ask students if they know what a poll is. Explain to them that a poll is when you take a question or group of questions and ask everyone in a community (or a significant number of the community members) to answer the question(s). By taking a poll, you can find out what most people in the community think about a particular issue.

- 2. Instruct the students to create their poll.** The students should work together to create one poll. You may have them use the polling sheet that is included in this lesson or have them write their own polling questions and polling sheet. The included polling sheets are based on the question, "Let's make our school look better! What part of our school could we make more attractive?"



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Procedure (continued)

If you want your students to create their own poll, then have the students brainstorm a list of potential questions. They will also have to create Poll Questionnaires and Poll Total Sheets following the examples included in this lesson plan.

- 3. Practice taking a poll and create a live bar graph of the responses.** Explain to the students that in order to conduct the poll, they will go in pairs to different classes in the school and poll the people in those classrooms. Each pair will be in charge of polling one or more classrooms. Before sending students out to poll the other classrooms, choose a pair of students to poll your own class first. They should follow the directions on the Poll Questionnaire Student Handout. Polling your own class first helps students understand what procedures they should follow when they are polling the other classes.

After the pair of students have polled your own class, tell students that you will be creating a live bar graph as a way to show the responses to the poll.

- Use masking tape to create a single, long line on the floor. Draw dividing lines on the tape so that you have five equal sections. Each section should be wide enough for a student to stand. Label the first column "School Entrance – Outside." Label the other columns with the rest of the answer choices, in order.
- Have all the students who chose Answer One (School Entrance – Outside) line up in column one. The front of the line should start right behind the tape.
- Next, have all students who chose Answer Two (School Entrance – Inside) line up in column two. Repeat the process for columns three through five (answers three through five).
- The students should now all be lined up in one of five columns. Explain to the class that they have just created a live bar graph. The graph should tell the class which answer or answers were the most popular among the class. Ask students to identify which answer or answers were the most popular, and which were the least popular.
- Draw the same information as a bar graph on paper. Explain to your students how it communicates the same data and display the bar graph in a place where the entire class can see it.

Tell the class that graphing is one way to take the information you gathered during the poll and display it in a way that makes sense to other people. Inform the students that after they finish polling the school, they will be drawing graphs to communicate the information they have learned to the rest of the school.

- 4. Direct students to collect data from the rest of the school.** Have students work in pairs to collect the data. Assign each pair one or more classrooms to poll. Also assign pairs to poll different groups of staff including the kitchen staff and the front office staff. The teachers can be polled as part of their classes. Work with the other teachers and the staff to find a time when the student pairs can conduct the poll. The Poll Questionnaire Student Handout included in this lesson plan is designed to be very simple to use and should take only five minutes to poll a single class. Remind students that every person gets only one vote.

Procedure (continued)

5. **Have students tally the results of the poll.** After the student pairs have polled all the classrooms and all the staff, gather all the Poll Questionnaires. Then have students work in small groups to tally the responses:
 - Distribute copies of the Poll Total Sheet to each small group.
 - Divide the Poll Questionnaires into grade levels. Make copies of the Poll Questionnaires and distribute grade level sets to each small group.
 - Have the small groups tally the responses by grade level. Have the groups compare answers to ensure they have tabulated the numbers correctly.
 - Have the small groups then complete the School Wide section of the Poll Total Sheet.
6. **Instruct students to create graphs to communicate the results of your poll.** Now that you have collected data on your poll question(s), tell students that they will analyze the responses and communicate the information to the rest of the school community. Review the information that the small groups filled in on the School Wide section of the Poll Total Sheet. These numbers should indicate the area of concern.
7. **Distribute the handout – Communicating the Results of our Poll.** Inform your students that they will communicate the information they gathered by creating bar graphs. Bar graphs are useful for showing how frequently an answer was chosen. Remind them that they made a live bar graph and a paper graph using just the answers from your class before they went to poll the other classes.

Students can create bar graphs for each class, for each grade level or just for the school wide response. (The responses by grade level may provide an interesting look at what children in different grade levels think is an important area of the school.)

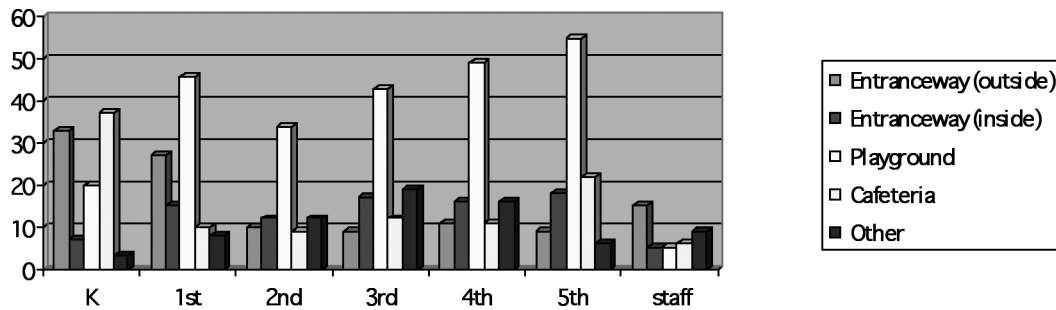
When the students have finished their bar graphs, have the class create a single, large display that shows the following:

1. Poll Questionnaire
2. Poll Totals by Grade Level
3. Bar Graph Showing Responses by Grade Level
4. School Wide Poll Total
5. Bar Graph Showing the School Wide Responses

Display this information in a place where the rest of the school can see the results.

Extension Activities

1. To bring technology into this lesson, you can use a software program such as Microsoft Word to create graphs. If you are using Microsoft Word, choose the "Insert" option and from there choose "Chart." A small sample spreadsheet pops up on your computer screen. Have your students change the labels to match who was polled (the grade levels and the staff), and what the answer choices were (the students can get this information from your Poll Questionnaire). Next, have your students enter in the data by grade level regarding how many people chose each answer choice. Once they have entered the data, Microsoft Word will automatically create a bar graph to match the data. Below is an example bar graph that is made using Microsoft Word.



2. Using the data gathered, the students may choose to initiate a service project to improve the identified hot spot.

Links To Heifer International

Determining a Community's Needs and Creating a Plan of Action

When Heifer International works with a community, it is not Heifer that presents the community with a plan of action. Instead, community groups form independently of Heifer, and the groups decide how they want to improve their community and their livelihoods. Only after a group has decided what it wants to accomplish and how they plan to do it, does Heifer International start working with a group. During the planning stages of a project, the community group must determine the different options it has and what members of the group want to do. The groups do some sort of polling activity, sometimes more formal and sometimes less formal, to find out how the members of the group feel about the different options. Thus, the polling activity in this lesson reflects the process that Heifer International partners go through when planning their own projects.

Heifer International promotes openness and inclusion in community groups, without discrimination based on factors such as gender. To find out more about Heifer's work with community groups, see www.heifer.org.



Student Handout: Poll Questionnaire

Name

Class Poll/Staff Poll

Directions:

1. In the space provided below write the name of the teacher and the grade level of the class you are polling.
2. Announce that your class is considering doing something to help the school. Explain that you are taking a poll to find out what parts of the school people think could be made more attractive. Explain that you will read the question and answer choices twice.
3. Read the Poll Question and the five answer choices out loud.
4. Now tell the students and teacher(s) that you will read the question and answers again, and they may only choose one answer. Tell them to raise their hand when you read aloud the answer that they choose.
5. Read the Poll Question and five choices aloud again. After you read each answer choice, stop and count the number of hands raised. Record the number on the table below.

Teacher Name: _____ Grade Level: _____

Poll Question:

Let's make our school look better!

What part of our school could we make more attractive?

	AREA	TALLY	TOTAL
1.	School Entrance (Outside)		
2.	School Entrance (Inside)		
3.	Playground		
4.	Cafeteria		
5.	Other Area _____		

Student Handout: Poll Total Sheet

Name

Grade Level

Directions:

Record the grade level, then write the names of each class teacher. In the column for each class, write the vote totals for each answer choice. This tells you how each grade voted.

Grade Level _____

	TEACHER: _____	TEACHER: _____	TEACHER: _____	TEACHER: _____	TEACHER: _____	TOTAL
1. School Entrance (Outside)						
2. School Entrance (Inside)						
3. Playground						
4. Cafeteria						
5. Other Area _____						

School Wide

Directions:

Referring to the Grade Level Poll Total above, record the votes of each grade level in the appropriate column below. (Staff refers to school employees who were not counted in the classrooms.) Then add the votes for each answer choice and write the total in the far right column. This tells you how the school as a whole voted.

ANSWER CHOICE	Grade _____	Grade _____	Grade _____	Grade _____	Grade _____	Grade _____	Grade _____	Staff	TOTAL
1. School Entrance (Outside)									
2. School Entrance (Inside)									
3. Playground									
4. Cafeteria									
5. Other Area _____									

