# Math 5 - Act. 31: The Left-Handed Experiment 

Summary
This activity has students conduct a sample survey of how many left-handed people there are in your school.

## Materials

Paper and pencil
Graph paper, chart paper, markers, crayons
Additional Resources
About Teaching Mathematics: A K-8 Resource, 2nd Edition by Marilyn Burns

## Background for Teachers

By taking a sample of some people in your school, can you determine approximately how many righthanded people there are for every lefthanded person? This experiment has students conduct a sample survey of how many left-handed people there are in your school. Students then conduct a school-wide survey and compare the results of the two surveys.

Intended Learning Outcomes

1. Demonstrate a positive learning attitude toward mathematics.
2. Communicate mathematically.

Instructional Procedures
Invitation to Learn
When students enter the room, have a piece of paper on each student's desk. Any paper will do; used or scratch. Ask students to hold their paper in their hand and do what you do to your paper. Wad up your paper into a ball, tight enough to throw the paper. Then have students stand up, and throw their paper toward the front of the classroom, and try to "hit" the chalkboard/whiteboard. Then have students sit down.
Instructional Procedures
Begin a discussion about throwing. Ask which students used their left hand to throw the paper towards the front of the classroom and which students used their right hands. Discuss how many students write with their left or right hands. Determine as a class how many left-handed and how many right-handed people are in your class. This may need to be clarified by what you use to determine if you are left or right-handed (throwing, writing, eating, etc.). Write the different ways of expressing the results of the class survey. For example: We have 18 right-handed students and 7 lefthanded students; 18/25 of the class are right-handed, $7 / 25$ are right-handed; 18 out of 25 students are right-handed and 7 out of 25 are left-handed; we have a ratio of 18:25 right-handed students and 7:25 left-handed students.
Pose a part of the problem:
Tell students you would like to find a way to count the number of people in your school. Ask: How could we find out how many people are in our school? Discuss if you will be counting ALL people, including teachers and staff, or just the students. After you have decided which people you will count for your experiment, tell students you are going to try to find out how many left-handed people there are for every right-handed person. You will then compare the results of your class survey with the results of the school census.

Have students devise a way to survey the people in your school. You may want to divide students into teams, then assign each team to survey a particular grade level. As students
devise this plan, record important information on the board.
Before sending students around to conduct their survey, discuss and decide how you will determine who is right and who is left-handed. Will you do the paper throwing experiment in every class? Or will you just question people by having them raise their hand if they are right, counting the number and doing the same for left-handed people.
Be sure to ask permission from teachers ahead of time. Let them know you will be sending students into their classrooms to conduct a quick survey.
Conduct the census.
When all people in the school have been surveyed, compile your results. How many right handed people are there for each left-handed person in the entire school? Are the results similar to that of your class survey? Were you satisfied with your sampling procedure (taking a class sample)? If not, how would you improve the way you sampled?
Curriculum Integration
Math/Science--Discuss with students if left-handed vs. right-handed is an inherited trait. Connect this to their study of inherited traits in Science.

## Extensions

Possible Extensions/Adaptation
This procedure can be used by individuals or small groups of students to investigate a variety of topics:
By sampling, determine approximately how many red-, blond-, brown-, and black-haired people there are in your school.
By sampling, decide how many people there are with each eye color.
Use sampling to determine the favorite TV show of students in your school.

## Homework \& Family Connections

A possible homework/extension to this activity would be for students to take a survey of at least 10 people from home, their neighborhood, on their bus, etc., to compare with the school wide survey taken.
Students should report their homework results to class the next day. Total the number of left-handed vs. right-handed people outside of the school. Compare these results with the results of the classroom survey and the school wide survey.

Assessment Plan
Students will write a report about their right-handed vs. left-handed experiment. Ask students to be sure to include numbers and comparisons in their written report. Students can share their written reports in small groups or with the entire class. You may want students to revise their reports, clarify any unclear details and even illustrating their findings in the form of a graph. Provide graph paper, chart paper, crayons, markers, etc. These can be posted in the classroom or on a favorite bulletin board for all to see.

## Authors

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