

# Michelle's Experiment

Michelle is sitting at the kitchen table working on her math. She has until Friday to decide on her project topic. Her mother is also sitting at the table. She is writing a letter.

As Michelle glances at her mom, she becomes puzzled. 'Mom, you're writing with your right hand!'



'I'm writing with a fountain pen, dear,' answers her mom. 'If I use my left hand I might smudge the ink.'



'But I thought you were left-handed, Mom,' says Michelle, still a little puzzled.

'I prefer to write with my left hand but I can write with either.'

'Is that what they call being ambidextrous, Mom?' asks Michelle as she tries to write her name with her left hand.

'Yes, that's right, Michelle,' answers her mother as she continues writing her letter. Michelle thinks and plans.

'You know, Mom,' says Michelle after a few minutes, 'it would be interesting to find out how well the kids in my class can write with each hand.'

Her mother looks up and smiles at her. 'It would be interesting,' she agrees. She has finished her letter and is now waving it through the air to dry the ink. 'How would you carry out such an experiment?'

'I could ask them to write as many Xs as they can in thirty seconds. If you're right-handed you should be able to write more Xs with your right hand than with your left. And the bigger the difference, the more right-handed you are. What do you think, Mom?'

'I think we should test your idea,' says her mother.

Michelle runs to the living room and calls her father.

All three of them sit at the kitchen table, with pencils in hand. Michelle sets the timer to beep in thirty seconds.

When they complete the experiment with both hands, they count the number of Xs. Michelle records the results in a table.

<i>Hand</i>	<i>Mother</i>	<i>Father</i>	<i>Michelle</i>
<i>Left</i>	70	35	56
<i>Right</i>	68	72	68

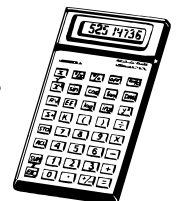
'That's right on for me,' says father. 'I can't write very well at all with my left hand.'

'It looks like you should be able to write better with your left hand than your dad, Michelle,' says her mother.

'Let's write our names with each hand to see the difference,' says Michelle.

Her mother's name looks perfect with either hand. But her father's writing with his left hand is barely readable. Michelle falls somewhere between her parents. Her left hand name is quite readable but not as neat as her right hand.

'Thanks dad! Thanks mom!' Michelle is delighted. She runs up to her room and gets a calculator.



I could write a ratio to compare the left and right-handedness, thinks Michelle. But all the numbers are different. If I use percentages it would be easier to compare.

This would be a great math project, she thinks to

herself. Michelle does the following calculations. Then she updates her table.

	<i>Left Hand</i>	<i>Right Hand</i>
<b>Mom:</b>	$70/138 = 0.507 = 51\%$	49%
<b>Dad:</b>	$35/107 = 0.321 = 32\%$	68%
<b>Me:</b>	$56/124 = 0.452 = 45\%$	55%

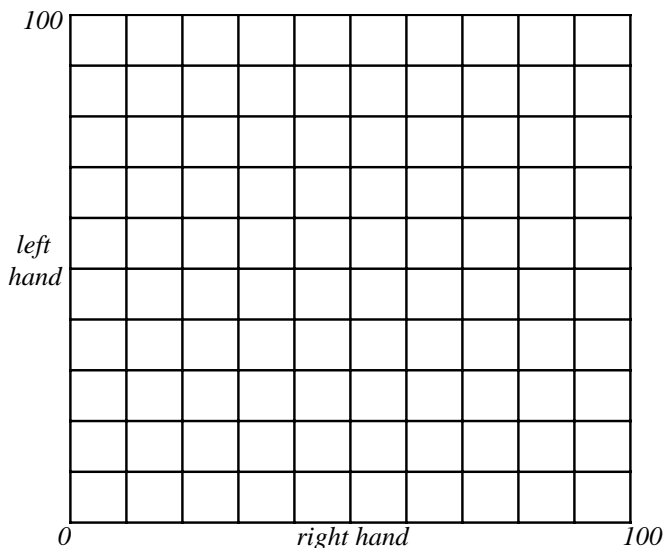
<i>Hand</i>	<b>Mother</b>	<b>Father</b>	<b>Michelle</b>
<i>Left</i>	70 51%	35 32%	56 45%
<i>Right</i>	68 49%	72 68%	68 55%

The next day, Michelle repeats the experiment with some of her friends. She records the results in a table.

	<i>Left Hand</i>	<i>Right Hand</i>
<b>Lucy</b>	37	64
<b>Rehan</b>	49	59
<b>Sylvia</b>	42	67
<b>Emanuel</b>	50	75
<b>Andreas</b>	39	62
<b>Kai</b>	36	72
<b>Elise</b>	43	70
<b>Sorina</b>	46	67

1. Test yourself as Michelle did. Add your results to the last row of her table.
2. Calculate the missing percentages for the table.

3. Use the grid to plot a scatter plot of all twelve sets of data (from both tables). For example, the ordered pair you would plot for Michelle's mother would be (68, 70).



4. Look at the scatter plot above.
  - a) Suppose you are ambidextrous. Where would you be in the scatter plot?
  - b) Is there more than one way to be ambidextrous? Explain.
  - c) If you are right-handed, where would your data be in the scatter plot?
  - d) If you are left-handed, where would your data be in the scatter plot?
5. Try Michelle's experiment with your class. Make a table, draw a scatter plot, and make a conclusion.
6. About 10% of all people are left-handed. How does your class compare to this statistic?
7. A few decades ago, only about 2% of North Americans wrote with their left hand. Do some research to find out why this was the case.