**Activity: The River Problem**

Suppose we wanted to estimate the yield of our corn field. The field is square and divided into 16 equally sized plots (4 rows x 4 columns). A river runs along the eastern edge of the field. We want to take a sample of 4 plots.

Using a random number generator, pick a simple random sample (SRS) of 4 plots. Place an X in the 4 plots that you choose.

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 river

Now, randomly choose one plot from each horizontal row. This is called a stratified random sample.

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 river

Finally, randomly choose one plot from each vertical column. This is also a stratified random sample.

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 river

Which method do you think will work the best? Explain. Now, its time for the harvest! The numbers below are the yield for each of the 16 plots. For each of your three samples above, calculate the average yield.

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| 4 | 29 | 94 | 150 |
| 7 | 31 | 98 | 153 |
| 6 | 27 | 92 | 148 |
| 5 | 32 | 97 | 147 |

**Graphing the results:**

Simple Random Sample:

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 10 70 130

 average yield

Stratified by Row:

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 10 70 130

 average yield

Stratified by Column:

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 10 70 130

 average yield