How Much Do Fans Love Justin Timberlake? Day 1

Justin Timberlake's concert promoter wants to find out how much fans enjoy the concerts. He will ask fans, "From 1 to 100, where 100 is the most, how much did you enjoy the concert?" The section he wants to survey has 50 seats (5 rows x 10 columns). The stage runs along the northern edge of the venue (where Justin is pictured). He wants to take a sample of 10 seats.

1. **Method #1**:
   Take a simple random sample (SRS) of 10 fans. Explain below the steps you used to obtain an SRS.

2. **Method #2:**
   Randomly choose 2 fans from each horizontal row.

3. **Method #3:**
   Randomly choose 1 fan from each vertical column.

4. Which method do you think is best? Why?

5. Now, it's time for the actual data. For each of your samples on the previous page, calculate the average enjoyment. Add your average to the dotplots on the board.
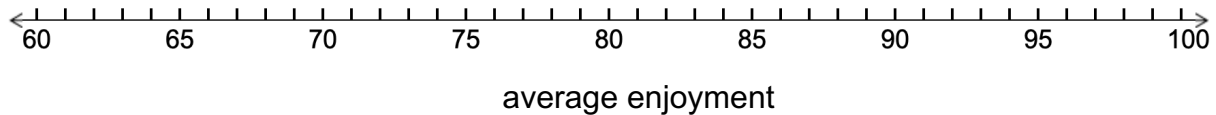
Sample #1:

Sample #2:

Sample #3:

92	89	90	88	95	100	98	93	95	84
82	86	90	88	86	91	90	89	85	83
80	74	80	67	81	82	76	77	74	65
72	68	74	73	70	69	72	70	68	67
69	67	68	68	64	66	63	63	70	68

Method #1: SRS

```
<--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+-->
   60      65      70      75      80      85      90      95      100
```
average enjoyment

Method #2: Stratify by Row

```
<--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+-->
   60      65      70      75      80      85      90      95      100
```
average enjoyment
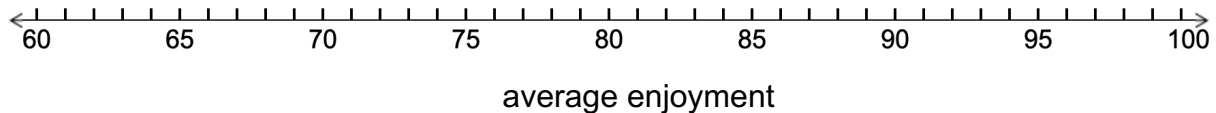
Method #3: Stratify by Column

```
<--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+-->
   60      65      70      75      80      85      90      95      100
```
average enjoyment
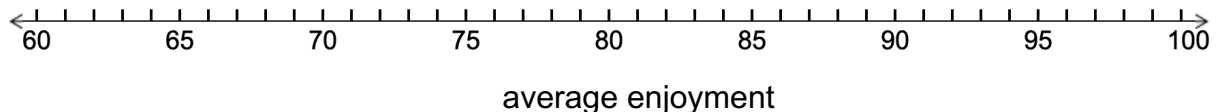
Other Random Sampling Methods Day 1

Important Ideas:

Check Your Understanding:

A factory runs 24 hours a day, producing wood pencils on three 8-hour shifts— day, evening, and overnight. In the last stage of manufacturing, the pencils are packaged in boxes of 10 pencils each. Each day a sample of 300 pencils is selected and inspected for quality.

1. Describe how to select a stratified random sample of 300 pencils. Explain your choice of strata.

2. Describe how to select a cluster sample of 300 pencils. Explain your choice of clusters.

3. Explain a benefit of using a stratified random sample and a benefit of using a cluster random sample in this context.