**Test Grades**

Ms. Smith gave an Algebra test to her three classes. The distribution of scores is as follows:

|  |  |  |
| --- | --- | --- |
| **First Class** | **Second Class** | **Third Class** |
| 70 | 60 | 60 |
| 75 | 65 | 65 |
| 76 | 70 | 66 |
| 77 | 75 | 66 |
| 78 | 76 | 66 |
| 78 | 77 | 67 |
| 79 | 78 | 69 |
| 79 | 79 | 72 |
| 80 | 79 | 75 |
| 80 | 80 | 77 |
| 80 | 80 | 83 |
| 80 | 81 | 85 |
| 81 | 81 | 88 |
| 81 | 82 | 91 |
| 82 | 83 | 93 |
| 82 | 84 | 94 |
| 83 | 85 | 94 |
| 84 | 90 | 94 |
| 85 | 95 | 95 |
| 90 | 100 | 100 |

In today’s activity you will compare the statistics for the three classes.

**Directions:** Each group will first look at data from **one** of Ms. Smith’s classes. Create a poster to display your results. Include all of the statistics on the poster paper.

1. Calculate the mean, median, mode, range, and standard deviation for your data.
2. Determine the first quartile and the third quartile.
3. Calculate the IQR.
4. Use the $1.5×IQR$ rule to find the upper and lower fences. Use the fences to determine if there are any outliers.
5. Create a box and whisker plot on a piece of poster paper. Mark any outliers that you found.
6. Construct a histogram on the poster paper. Be sure to label the axes and set an appropriate scale.
7. Draw conclusions from your data explaining what you have learned about the class’s test scores.

**Data Center**

Collect data from the other groups and fill in the table.

|  |  |  |  |
| --- | --- | --- | --- |
|  | **First Class** | **Second Class** | **Third Class** |
| Mean |  |  |  |
| Median |  |  |  |
| Mode |  |  |  |
| Range |  |  |  |
| Standard Deviation |  |  |  |
| Upper Quartile |  |  |  |
| Lower Quartile |  |  |  |
| IQR |  |  |  |
| Upper Fence |  |  |  |
| Lower Fence |  |  |  |
| Outliers |  |  |  |

1. Which statistics are the same for all three classes? Which are different?
2. What set of test scores has the most spread? Which statistics show this?
3. What do the box-and-whisker plots and histograms tell you about the differences among the three classes?