

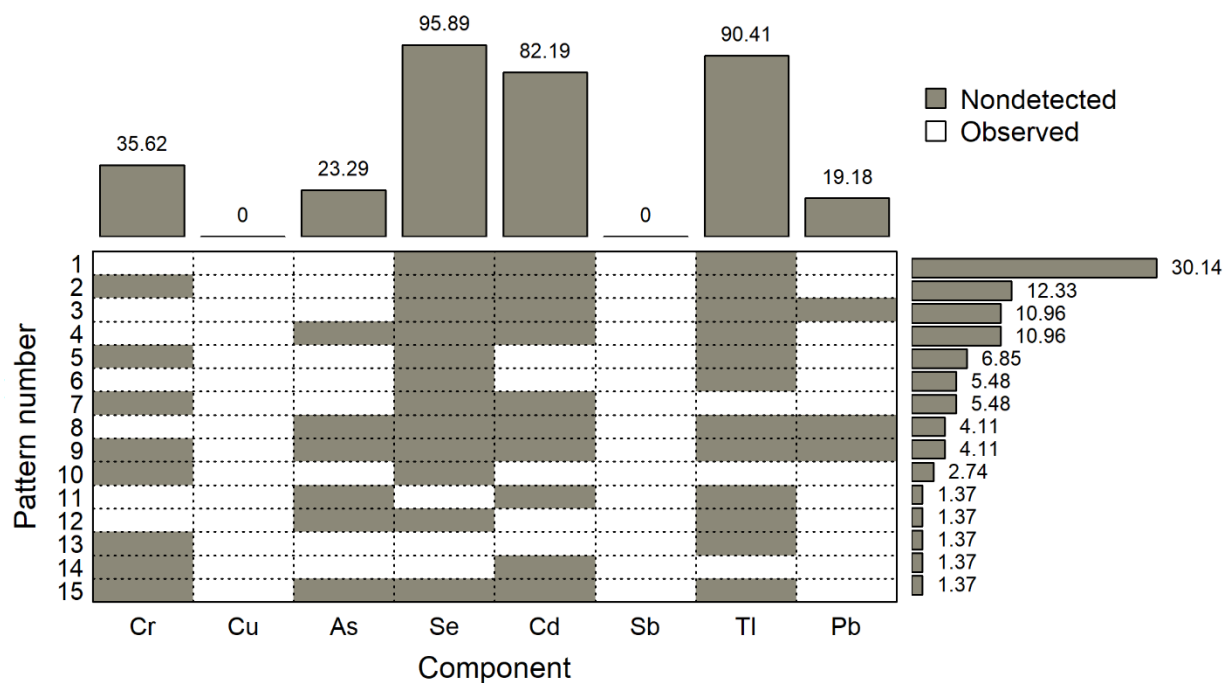
## Supplementary Information

### Trace Element Analysis, Model-Based Clustering and Flushing to Prevent Drinking Water Contamination in Public Schools

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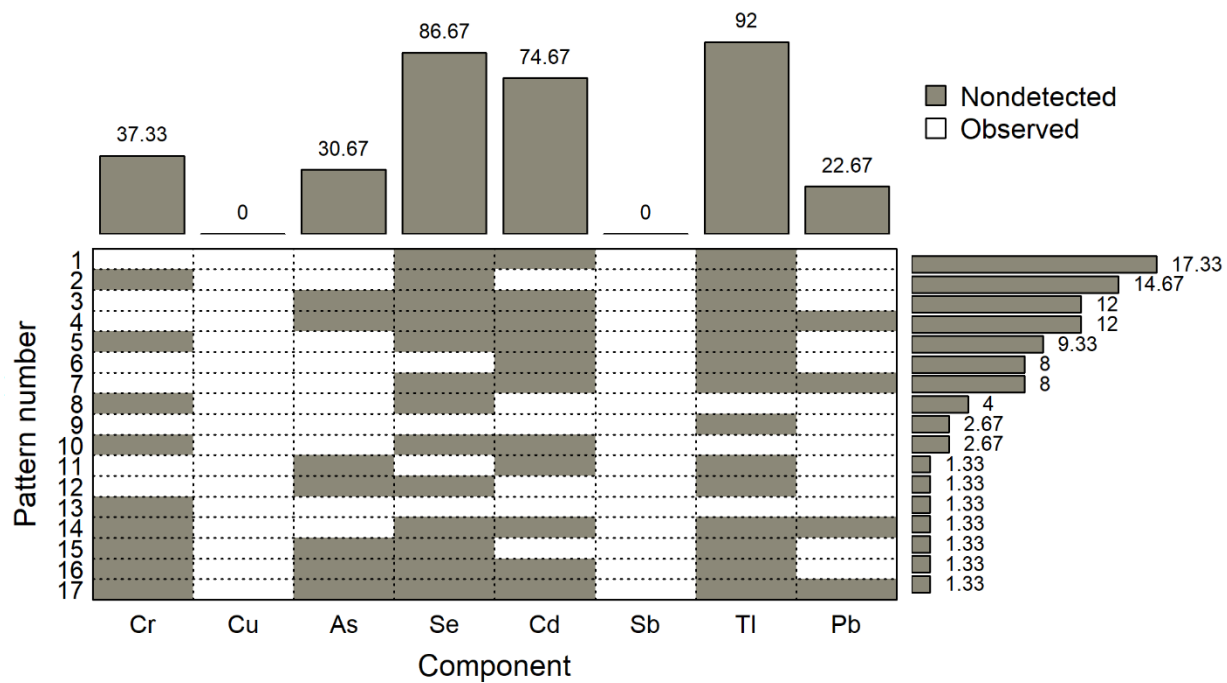
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Figures S1 and S2 show the proportions of data below elemental LODs for cafeteria and fountain samples, respectively.



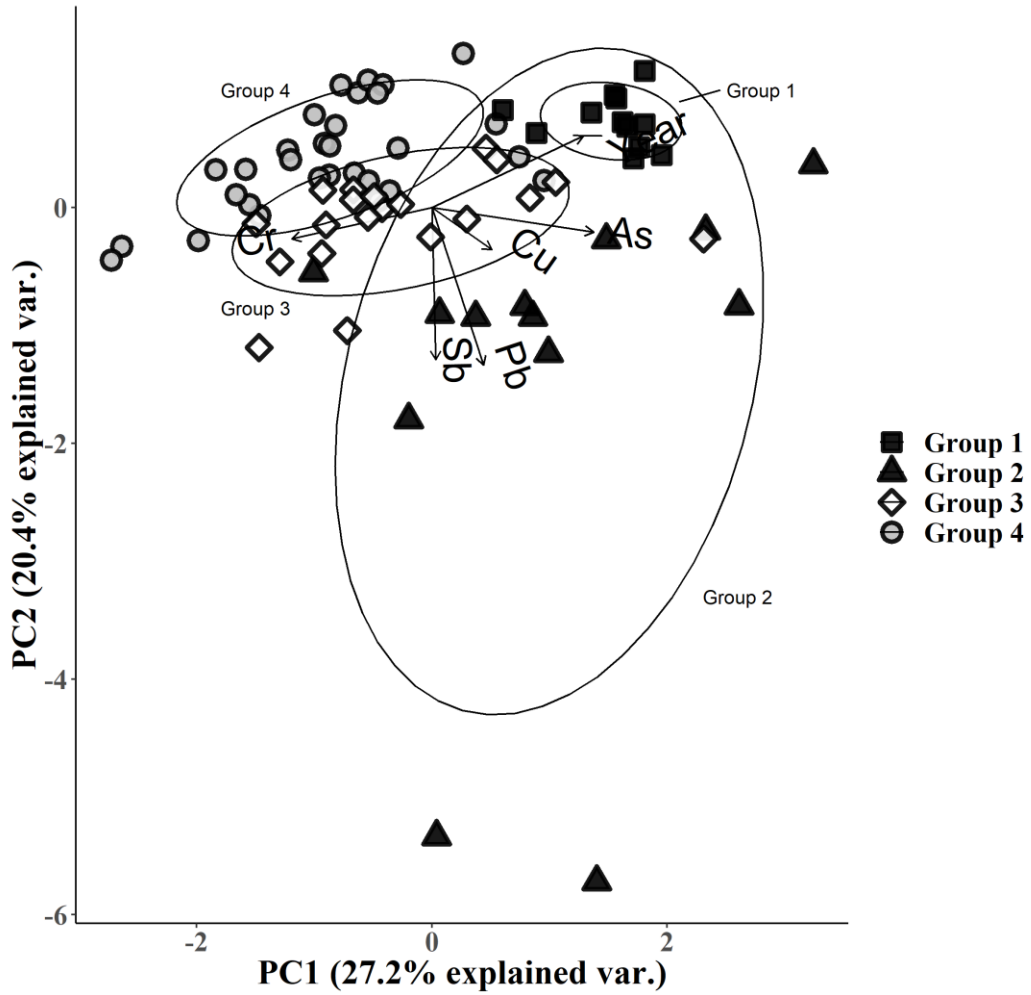
**Figure S1.** Patterns and proportions of cafeteria sink observations below elemental LODs. Horizontal bars represent the percent of the entire dataset with the corresponding row pattern. Vertical bars represent the percent of data corresponding to a certain feature (column) with observations below the LOD.

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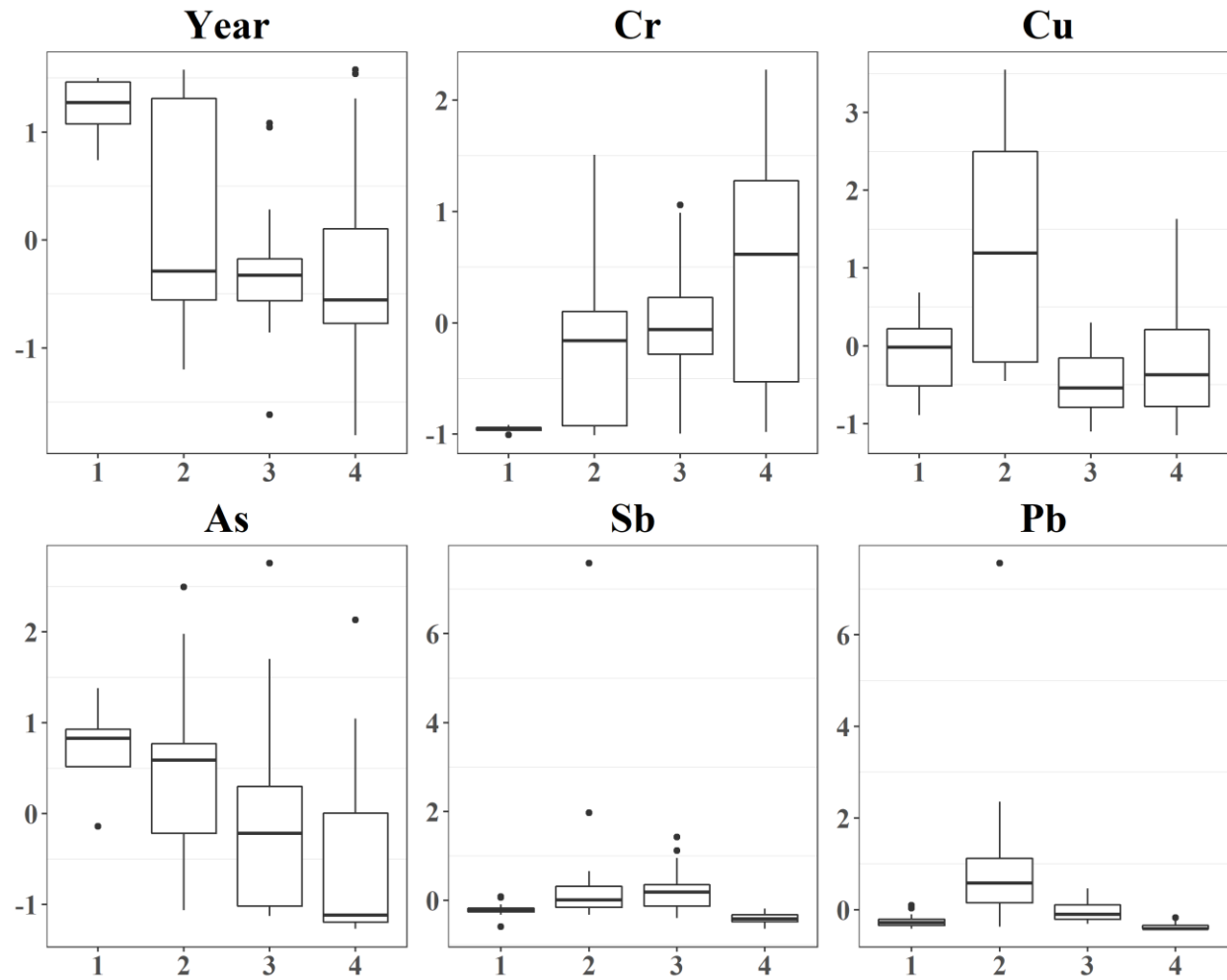


**Figure S2.** Patterns and proportions of water fountain observations below elemental LODs. Horizontal bars represent the percent of the entire dataset with the corresponding row pattern. Vertical bars represent the percent of data corresponding to a certain feature (column) with observations below the LOD.

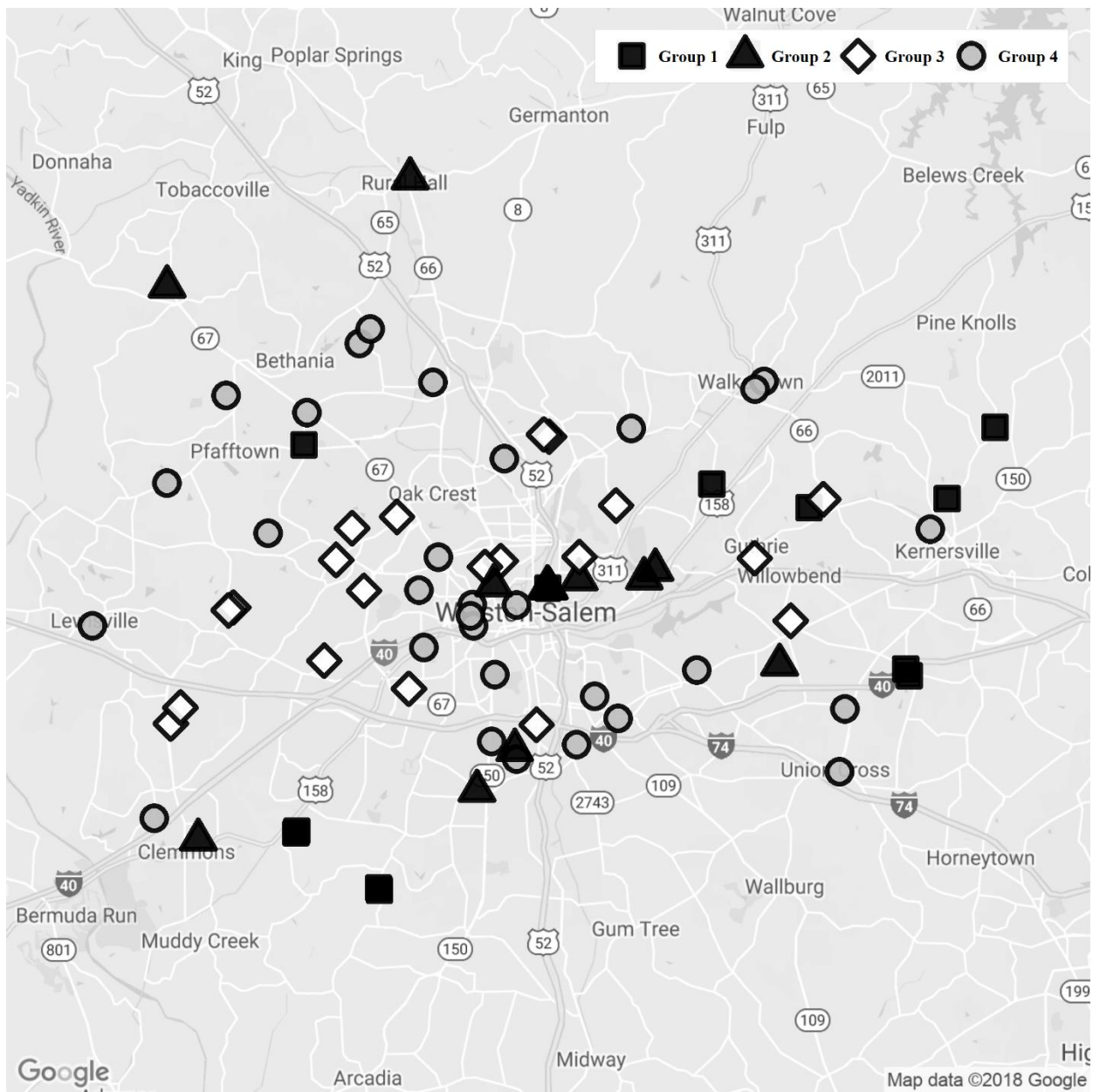
Figures S3-S5 show the water fountain results, which are similar to those presented for cafeteria sinks in the main text (Figures 2-4). Figure S6 shows the flushing concentration profiles for both cafeteria sinks and water fountains in locations A, B and D. Similar results are shown for location C in the main text (Figure 5).



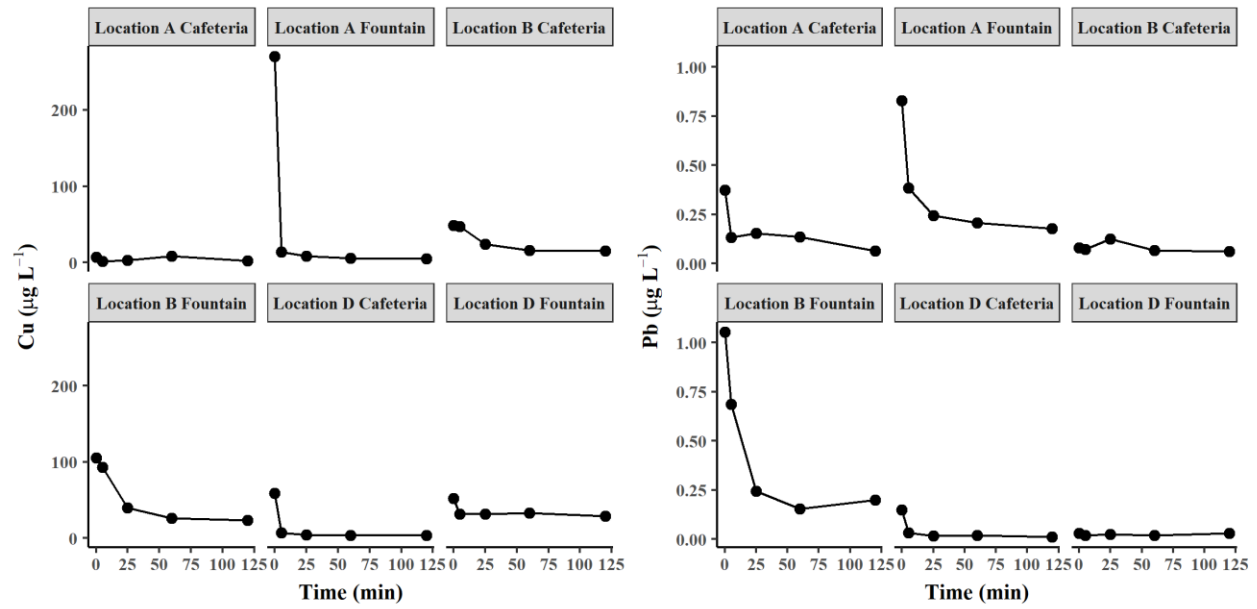
**Figure S3.** Biplot of the scores and loadings from the first two principal components after principal components analysis of the standardized water fountain dataset. Groups 1-4 are composed of 12, 13, 20 and 30 water fountain samples, respectively.



**Figure S4.** Boxplots of standardized water fountain data. The x-axis represents the sample group assignment after model-based clustering, and the y-axis represents the number of standard deviations from the mean.



**Figure S5.** Geographical location of WSFCS school buildings according to group assignment after model-based clustering of water fountain data. The background in this figure was prepared with Google Maps and includes Winston-Salem (36.0998610°N, 80.2442170°W) and neighboring towns in Forsyth County, NC, USA.



**Figure S6.** Two-hour flushing profile for Cu and Pb concentration in drinking water from cafeteria sinks and water fountains in school locations A, B and D after 52 days of summer break.