Volume Estimation Using a Sheet Surface – Class Handout

1. Fill in the table below with the volunteers' names based on their locations on the grid:

2. Add the volunteers' height data to the table above.
3. We want to approximate the volume between the surface and the floor, so we will treat each person's region as a 2 ft $\times$ 2 ft square-based rectangular prism, i.e., a box. Approximate the volume of each box.
4. What units might be appropriate for calculating the volume? Why?
5. Does it matter if you first add all of the heights and then multiply by the area of each person's square base, or if you first calculate the volume of each region first and then total these volumes? Explain.
6. What is your approximation for the total volume beneath the surface?
7. Recall the appearance of the surface. Do you believe the approximation we calculated is an overestimate or an underestimate? Explain your reasoning.
8. What could you do to get a better approximation? Is there additional data you could have collected to improve the accuracy of your estimate, and if so, what?