Best plant-based milk competition: Example

Teacher decided to prepare basic oat milk with the students. Below is a step by step tutorial for one portion of oat milk. For clarity, the tutorial uses the same numbers as the example line in the provided excel sheet.

Before the lesson

1. Teacher took 73g of dry oat flakes, added water (enough to cover the oat flakes + some more as they will expand in the size) and let them soak overnight
2. In the morning,the teacher discarded the water left, saving the oat flakes, and weighted the oat flakes again
3. After soaking, the oat flakes weigh 150g
4. Calculation of “soaking factor”: 150/73 = 2,05

Soaking factor:
Soaking factor estimates, how much weight the selected ingredient gained after soaking (the additional water content), therefore:

Weight after soaking / Weight before soaking

During the lesson
Students are provided with ingredients. Our student decided to prepare basic oat milk.

1. She takes one cup of the ingredient (oat milk) and weighs it. It weighs 150g
2. As she is preparing pure oat milk, with no additional ingredients, the total weight of ingredients (column C) is the same - 150g
3. Student prepare the oat milk. She put the ingredient and water (1L) into blender and blends it until it is smooth. She then uses the filter (cloth or French press coffee maker) to get as much milk as possible. She saves the “bulk” of solid material left in the cloth/French press (see videos)
4. After filtration, student weighs the remaining solid bulk to see, what proportion of ingredients (nutrients) stays in the liquid and what does not. Lets pretend that the bulk weight is 75g. Write that into column D.

5. Then, she needs to estimate, what proportion of ingredients stayed in the milk, in other words, the table will calculate: (150-75) / 150 = 0.5. In other words:

(Original weight - Bulk weight) / (Original weight)

0. The proportion calculated in column E will then be used to calculate the proportion remaining in the liquid for every single ingredient used. In this case, there is only one ingredient, oat flakes: 150g x 0.5 = 75g. We need this number to calculate what amount of nutrients we can expect in the milk (Note: For simplicity, we assume that all ingredients were filtered/ blended equally).
0. The calculated weight is the "wet weight" after soaking and mixing with water. However, information about nutrient content can be found only for dry ingredients. This is when the student needs the soaking factor (calculated before), which tells her how much water the ingredient absorbed. In other word, in column H, we estimate what amount of dry oat flakes actually is in the milk: 75/ 2.05 = 36,59
0. The nutrient content is usually displayed for 100g of dry ingredients. Therefore, in column I the student estimate what proportion of 100g is in the milk: 36.59/100 = 0.37
0. The student will need to search for the nutrient content. For that, she will use freely available online databases and/or prepared table provided by the teacher. In column K, she will write down the nutrient content in 100g for every nutrient in the table.
0. In column L, using the proportion of 100g (number from column I) and nutrient content provided in column K, the table will calculate the content of nutrients left in the prepared milk.
0. As a last step, in case the student is using more than 1 ingredient, it is necessary to sum up the nutrient content from every ingredient used to get the final number (the student can use the table in "Total content" sheet). In this case, there is only one ingredient and therefore the nutrient content from the first table is final.