**Sugar in our drinks** CLASS SET – DO NOT WRITE ON ME – DO NOT TAKE ME HOME!

**Step 1:** On your own, **estimate** the number of sugar cubes worth of sugar found in each of the 41 drinks! Write your estimates in the data table on your handout. ***Note****: You are NOT trying to guess the amount of sugar that can physically fit in each can/bottle. You are estimating the amount of sugar that is equal to the amount of sugar in each drink.*

**Step 2:** In pairs, **calculate** the actual number of sugar cubes contained in your drink (round to the nearest whole number). Then, calculate the **concentration** of sugar (round to one decimal place)in grams per 100 milliliters (g/100mL). This value shows much sugar you would get if you only drank 100mL of it.

**Step 3**: Trade drinks with the other pair in your group, and do the same calculations for the new drink. Afterward, compare answers to make sure both pairs agree.

**\*\*\*DO NOT TO EAT THE SUGAR CUBES**\*\*\*

*(They have been touched by hundreds of dirty students and you should NOT assume they are safe to eat!)*

**Step 4**: Return the drinks and **display** the correct number of sugar cubes in the plastic cup next to it so others can see your results. Write that number of sugar cubes and the concentration in the **data table** projected up front so the class can add your answers to their own paper.

*\*\*\*At this point, groups that complete steps 3 and 4 quickly may choose another drink to work on while others catch up, or help others struggling with their calculations\*\*\**

**Step 5**: Copy the data (actual number of sugar cubes and concentration) for all of the other drinks, and look at the amounts of sugar placed in each cup.

**Step 6:** Look at the sugar in each drink. Imagine you were eating the sugar cubes instead of drinking the beverage. On a separate sheet of binder paper, answer question 1 and explain with examples!

**Step 7:** Answer question 2. (**Hint**: *notice that there are more sugar cubes in the American coke than the Mexican coke, but the concentrations are the same. Why would one have more sugar cubes than the other if 100mL of American coke has the same amount of sugar as 100mL of Mexican coke?*

*When you look at the sugar for each container, it’s helpful to see the sugar cubes there; but when you compare the sugar content of various drinks, you should look at the concentration of sugar instead of just the number of sugar cubes. Why?)*

**Step 8***:* In the concentration column of your data table, identify and highlight/ circle the highest 10 and lowest 10 concentrations. Answer question 3.

**Step 9:** To answer question 4, first look through the concentrations of drinks on your data table. you will have to choose 3 comparisons to write about. For example, you can compare the concentrations of sugar in group B (the four orange drinks) and explain what you think is interesting or surprising about them. Or, you can compare drinks of different groups. Either way, you need to explain what was interesting or surprising to you. This step shows your ability to analyze data—to pick out the most interesting information from a bunch of numbers.

**Step 10:** Calculate your percent error for each drink, filling them in on the last column of the data table. Then, identify and highlight/circle the highest 5 positive numbers and the highest 5 negative numbers. A positive number means your guess was too high, and a negative number means your guess was too low. The bigger the number, the farther off you were; while the smaller the number, the closer your guess was.

**Step 11:** Answer question 5. *(****Hint****: what would your percent error be if your guess for Gatorade was higher by 1 cube? What would your percent error be if your guess for G2 was higher by 1 cube? In both cases, you’re off by 1 cube, but your percent error for each is quite different!)*

**Step 12:** Answer question 6. This step helps you see what misconceptions you had about the amounts of sugar in your drinks.

**Step 13:** Answer question 7, and explain with examples.

**Step 14:** Staple your binder paper to the data table handout, make sure your name/date/period is on it, and turn it in.