

Galactic Chocolate Chip Pancakes

Your task is to take what you know about the composition of “galactic chocolate chip pancakes” and relate that to a recipe for spiral galaxies. First one done correctly gets the first pancake!

Directions: Add up the “mass” in cups of all of the dry ingredients (white rows). To find the weight percent, divide the mass of each ingredient by the total mass. You may find that it is easier to write 0.5 instead of 50%. Once you have found the weight percent for each ingredient, multiply that decimal by the mass of the galaxy, $8 \times 10^{40} \text{kg}$. Record that answer in the corresponding galaxy ingredient.

| | Weight % | |
|---------------------------------------|----------|--|
| 4 cups flour | | _____ HI, HII, H ₂ regions |
| 0.375 cups (6 tbsp) Sugar | | _____ He |
| 0.0625 cups (1 tbsp) Baking powder | | _____ Dust |
| 0.031 cups (½tbsp) Baking soda | | _____ Other gases (C, N, O) |
| 0.031 cups (½ tbsp) Salt | | _____ Other molecules (CO, HCN, H ₂ O) |
| ½ cup Chocolate Chips | | _____ Stars |
| 4 cups milk 4 eggs | | } = Gravity binding the galaxy |

_____ cups: Total pancake “mass” = Total galaxy mass: $8 \times 10^{40} \text{kg}$

1 cup of chocolate chips = 100 Billion (1×10^{11} stars)