

Inquiring Hannah

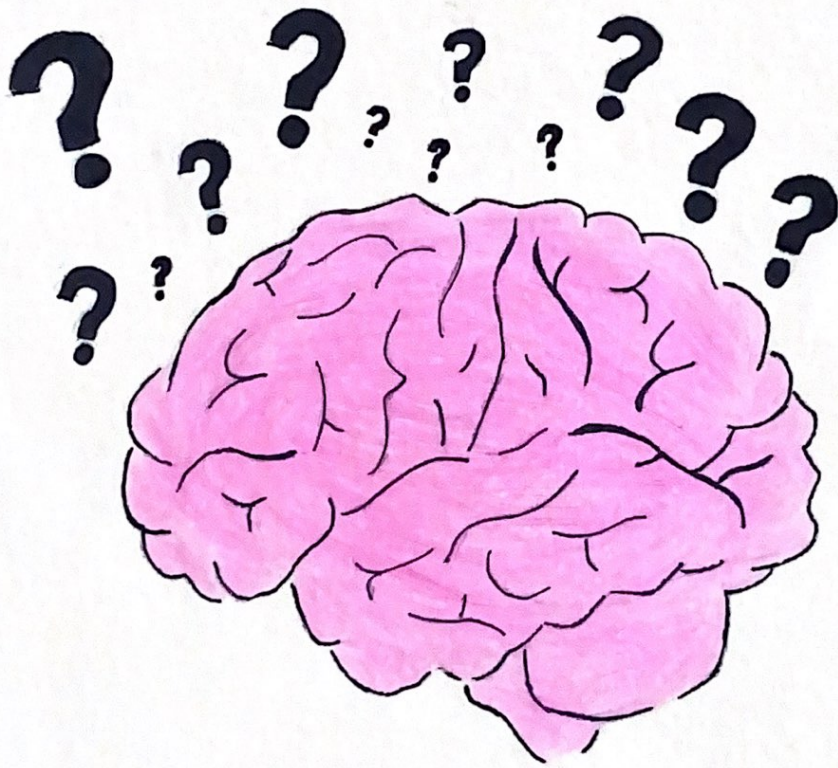


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Dear Readers,

In this magazine, you will gain a glimpse into my rich and evolving life. As you read you will find not only an interesting and informative article about my kombucha passion but a vignette of how one smart, though annoying, kid in kindergarten changed the entire course of my educational life. You will also encounter a recipe for kombucha, my favorite drink, and a quiz to see if you were smarter than kindergarten me.

In the kombucha article, you will read not only about the fascinating science behind the blob-like SCOBY but also learn about the emotional value kombucha has in my life.

If you didn't already know, kombucha is a fermented drink that took the world by storm for its supposed health benefits. With the growing popularity of kombucha, new flavors continue to emerge. My favorite flavor remains cherry pomegranate, though readers may be tempted to try something different— maybe lemon ginger or even rainbow.

Moving beyond kombucha, in the vignette, you will learn how 5-year-old Luca lit a competitive spark in me, which led to my current love of math. Today this love of math practically defines who I am and much about my identity and more.

While this magazine barely scratches the surface of who I am, I think you can begin to get a pretty good idea of me. From my passions to my love for my friends and family, I hope you enjoy reading and learning about me.

Sincerely,

A handwritten signature in black ink that reads "Luca Stein". The signature is stylized, with the first name "Luca" written in a cursive-like font and the last name "Stein" in a more upright, blocky cursive. There are some additional scribbles and lines below the name.

The Kombucha Craze

During the long days of quarantine, I decided to explore new and interesting foods. This led me to the world of kombucha— a smelly, bubbly brew of goodness. Bottle after expensive bottle, I slowly realized this habit was not financially sustainable, and so I started to research making my own kombucha.

This complex drink is a fermented tea dating back to 220 BC. If you've never tried it, kombucha is a highly acidic and carbonated drink that some say tastes like vinegar. I would argue, however, that the sharpness of the flavor is nothing but refreshing. Additionally, kombucha has a myriad of health benefits— most notably gut health.

My quest to make my own perfect drink took me down a scientific path. Kombucha is made in two steps; the first fermentation and the second fermentation— simple. The first fermentation requires you to essentially make a large batch of tea and ferment it in a glass gallon size jar with a SCOBY. A SCOBY is a living organism that is usually round and kind of jelly-like. Imagine a brown blobfish floating in a jar of brown liquid. Yes, it is ugly, but also exciting.

During the first fermentation, the bacteria from the SCOBY use the carbon from the sugar to extrude strings of nano cellulose from pores on the bacterial cell wall. These strands, also known as nano cellulose fibrils, tangle together to form larger strands, then a thin layer, and eventually another SCOBY. So yes, the blob is a living organism, and yes, it grows. After seven to ten days, the second fermentation begins in which the fermented liquid is bottled with a flavoring of your choice (I like cherry pomegranate) for 3-7 days.

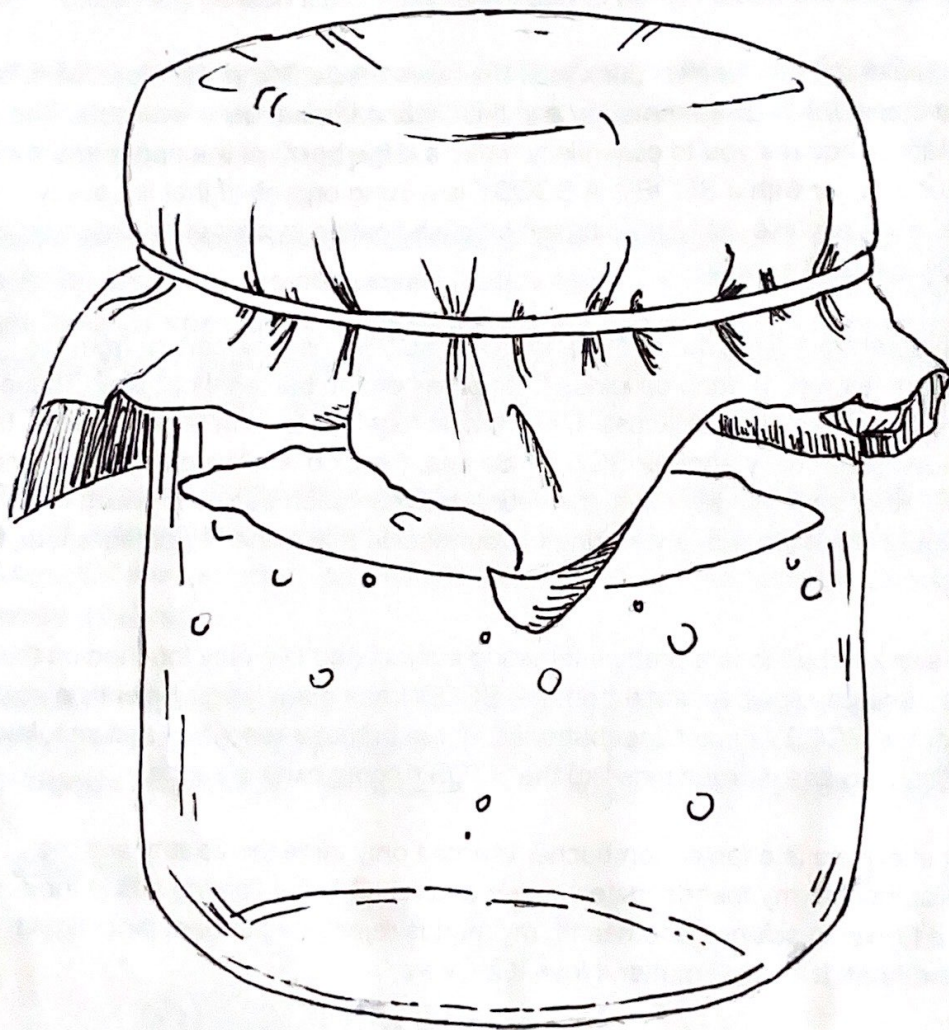
As you can see kombucha is a pretty interesting subject and I've only touched on the basics. This nano cellulosic material from the SCOBY has many uses. Scientists now see a use for the SCOBY in clothing, batteries, nerve damage research, and simulated space conditions to see if organisms like the SCOBY could exist in space.

I realize not everyone is a fan of kombucha. Where I only taste the beauty and the balance of kombucha, my friends taste vinegar and recoil at the floating bits in their drink. Where I revel in science and health, my friends reject the pungent jar of liquid brewing in the heat. It doesn't matter, I love it anyway.

Even my family has questioned my devotion. I remember my mom worriedly glancing over at my kombucha living high in our dining room and talking about how the SCOBY

is going to come alive one night and eat us all. In fact, the next day my brother and I dared each other to eat the dried-out SCOBY (which only I was brave enough to do).

While it sounds silly to be emotionally attached to a drink, I remain devoted to kombucha. I look fondly up at my jar of kombucha with its ever-growing blob and only see the potential for good taste and good health.



How To Have Your Own Kombucha in 15 Steps

1. Bring 4 cups of water to boil in a pot
2. Add 3 tbsp of loose-leaf black tea and let steep for 5-7 minutes
3. Remove tea and add 1 cup of white sugar and stir until dissolved
4. Pour the tea into a 1-gallon glass brew jar
5. Add 8 cups of water to the brew jar
6. Measure the temperature of your brew jar, it should be between 68-86°F
7. Add SCOBY and 1-2 cups of starter liquid
8. Test the pH level of your brew jar. It should be 4.5 or below
9. Cover the brew jar with a cotton cloth and rubber band and place brew jar in a warm place out of direct sunlight with airflow for 8-10 days
10. Test the pH level of the brew jar. Should be between 2.5-3.5
11. Filter kombucha leaving SCOBY and 1-2 cups of liquid for the next batch

Now you can either enjoy your kombucha or go the extra mile and flavor your kombucha

12. Add your choice of flavoring to your kombucha (this can be juice, concentrate, or even fruit)
13. Add your kombucha to long-necked swing top bottles and if you wish make your kombucha even more carbonated by adding a pinch of sugar
14. Wait however long you wish depending on how carbonated you want your kombucha (The recommended is 2-3 days but I prefer 7-10 days. But be careful, if you wait too long your kombucha may erupt when opening if you wait too long)
15. Enjoy!

The 100 Question Challenge

I don't think I was a competitive little kid growing up. I wish I could say that this was because I was deep and wise and realized life is too short for competition, but really I was just oblivious and didn't care who was the best. Nine years later and that sweet girl is gone and I found myself just yesterday fiercely challenging my brother to a mustard-off. I don't even know what a mustard-off is, but I certainly know how I became so competitive.

Even in kindergarten, I prided myself on my intelligence, specifically in math. I think it was because every time I told an adult that I like math they replied with "That's great!" or "Keep with that; there aren't enough women in math." or "You know math is where the money is at." At least some phrase that implied math was better and I was therefore better.

In Mrs. Gordon's class of five-year-olds, my greatest achievement was the 100 questions challenge. Which was a sheet of paper with 100 simple math questions that we tried to complete in under a minute. Every day I got somewhere in the high 90s and most questions were right.

I loved that I was always well above the average 20-30 questions and was not shy about it. At recess, I remember sitting on top of what we called the dome but was actually like a bunch of monkey bars in the shape of a small circle and asking everyone who stopped to climb what they got.

"On what?" They'd respond, struggling to climb up in their puffy coats

"On the 100 questions of course, what else would it be."

"I mean I don't really remember, nothing bad I guess."

"Oh, well not to make this a competition or anything but I got 97."

While I was pretty decent at math, my manners in kindergarten were not great.

During the spring when the snow was finally melting, our class had the surprise of three new schoolmates, one of whom was Luca. Luca, though he was often disruptive and rude, was pretty smart for a kindergartener. He spoke Italian fluently, could spell any words, and also was fast at math. Even with these attributes, I dismissed Luca's ability to ever beat me at the 100 questions.

"You ever done this before?" I asked Luca while the sheets were being passed out

"Done what?"

"The 100 questions, the goal is to complete them all in a minute or less."

"Oh, ok," he said, looking at the problems, trying to figure out the answers before the timer started

"We do these like every day so there's no pressure or anything, I mean you probably won't beat me."

"Mhm."

The teacher then went to her computer and said,

"Ok class, you can begin... now."

While Luca quickly scrambled to fill out questions I nonchalantly started writing down answers, I knew what I was doing. Yet, with at least 10 seconds to go Luca put his pencil down, then picked it back up to start playing it.

I was so confused. Did he get stuck, or just give up? I spent the next 10 seconds not even filling in the rest of the answers and instead just wondering why Luca was doing this.

The second the timer went off I asked him,

"Why'd you stop?"

"I was done."

I was shocked. I was more than shocked, I was upset. I was supposed to be good at math. I didn't even get in the 90s, I earned an 84 that day if you count the half-written answer for the last question.

From then on, for the rest of the year, I came home from school and practiced my flashcards, hoping the next day I would beat Luca at the 100 questions. I never did.

While younger me (and maybe, sort of, current me) hated Luca, I'm ultimately glad for the effect he had on my learning. The constant practice and sting of real competition, made me truly fall in love with math.

Also, this isn't really a part of the story, but in 5th grade, I beat Luca at the math game 24- so I really won.

Do It Yourself: 100 Questions Challenge

Are you smarter than Kindergarten Hannah? In kindergarten every day Hannah had an assignment to complete as many math problems in a minute. Her record was 98 questions. Set a timer for 1 minute and on a separate sheet of paper write down as many answers as you can. Afterward, check your answers on the back and subtract how many questions you got wrong from the total number of completed questions for your score. **Ready... set .. go!**

1. $5+7=$	26. $14+16=$	51. $9-5=$	76. $16-12=$
2. $8+3=$	27. $18+12=$	52. $4-3=$	77. $18-16=$
3. $2+9=$	28. $14+11=$	53. $7-3=$	78. $19-14=$
4. $4+6=$	29. $13+15=$	54. $6-1=$	79. $14-13=$
5. $8+6=$	30. $18+12=$	55. $9-7=$	80. $18-11=$
6. $3+7=$	31. $26+6=$	56. $8-4=$	81. $28-4=$
7. $9+4=$	32. $27+1=$	57. $3-3=$	82. $24-3=$
8. $6+6=$	33. $24+9=$	58. $5-2=$	83. $27-6=$
9. $2+4=$	34. $21+4=$	59. $6-4=$	84. $23-1=$
10. $6+5=$	35. $24+3=$	60. $7-2=$	85. $26-7=$
11. $12+7=$	36. $26+6=$	61. $16-7=$	86. $24-6=$
12. $16+3=$	37. $28+7=$	62. $13-6=$	87. $21-2=$
13. $14+4=$	38. $22+9=$	63. $19-2=$	88. $22-5=$
14. $18+3=$	39. $25+1=$	64. $14-9=$	89. $25-8=$
15. $12+7=$	40. $27+4=$	65. $18-7=$	90. $27-6=$
16. $11+2=$	41. $26+15=$	66. $11-4=$	91. $26-18=$
17. $13+8=$	42. $27+16=$	67. $15-8=$	92. $24-13=$
18. $15+9=$	43. $24+14=$	68. $12-3=$	93. $23-17=$
19. $17+1=$	44. $21+19=$	69. $17-1=$	94. $28-15=$
20. $14+7=$	45. $24+18=$	70. $12-5=$	95. $21-19=$
21. $16+17=$	46. $26+14=$	71. $17-12=$	96. $25-11=$
22. $12+16=$	47. $28+11=$	72. $15-13=$	97. $22-12=$
23. $17+13=$	48. $22+13=$	73. $19-16=$	98. $27-14=$
24. $16+19=$	49. $25+16=$	74. $14-14=$	99. $29-16=$
25. $14+16=$	50. $27+18=$	75. $18-11=$	100. $25-13=$

WHO AM I



By: Hannah Stein