我推翻了自己的猜测，这比做对更值钱

科学课期末实践，我做的题目是绿豆发芽。开始之前我有个很硬的信念：豆子长得好不好，全看水给得够不够。我甚至给这个信念起了名字，叫水越多越好。结果三周之后，我亲手把这个信念推翻了。现在回想，推翻它的那三周，比我做对任何一道题都值钱。

我先老老实实把问题写清楚：水分多少，到底怎样影响绿豆发芽？再把猜测写下来：水越多，芽长得越好。然后设计实验。我用了六个一样的盘子，每盘二十粒绿豆，分成三组：第一组纸巾保持湿润，第二组每天浇到刚好积水，第三组几乎不浇水。六个盘子放在窗台同一个位置，豆子是同一袋里挑的，大小差不多。我在本子上写：唯一要比的是水，其他都得一样，不然结果说不清。

两周下来，湿润组二十粒出了十八个芽，又直又白；积水组出了九个芽，根尖发黑，有一股闷味；干旱组出了三个，芽矮矮的，头是黄的。我盯着积水组看了很久——那正是我原来认为待遇最好的一组。结论跟我的信念反着来：绿豆发芽要的水，是湿润，不是泡着。

我在实验报告里写：我的猜测被自己的数据推翻了。交上去本来有点不甘心，科学老师却在旁边批了一句：能被证据说服，是比结果更重要的收获。这句话我想了很久，慢慢品出了味道。以前我做题、跟人争论，都先把立场站好，再去找支持自己的说法。实验逼着我反过来：先定规则，再看数据，数据说不，我就得说否。

这个反过来，后来搬进了我的物理学习。错题本上我不再只抄正确答案，而是先写下我当时错的想法，再写证据为什么不容这个想法。有一次月考，一道浮力题我第一反应还是旧的直觉，笔停了一下，问自己：这个直觉经得起哪组证据检验？那一分最后拿住了。

实验教会我的科学思考，我总结成一句话：猜测可以大胆，但证据面前不许护短。一个人能被自己的实验推翻，还能服气，这大概就是科学留给人身上最耐用的东西。

I Overturned My Own Guess, and That Was Worth More Than Being Right

For the science final practical, my topic was sprouting mung beans. Before starting, I held a firm belief: whether beans grow well depends entirely on giving them enough water. I even named the belief - more water is always better. Three weeks later, I overturned that belief with my own hands. Looking back now, those three weeks of overturning were worth more than any test question I got right.

I first wrote the question honestly: how exactly does the amount of water affect mung bean sprouting? Then I wrote my guess: more water, better sprouts. Then I designed the test. I used six identical plates, twenty beans each, in three groups: the first kept its paper towel moist, the second got watered until water pooled every day, the third got almost none. All six plates sat in the same spot on the windowsill; the beans came from the same bag, picked to be about the same size. I wrote in my notebook: the only thing being compared is water; everything else must

stay the same, or the result explains nothing.

After two weeks, the moist group had eighteen sprouts out of twenty, straight and white; the flooded group had nine, with blackened root tips and a stifled smell; the dry group had three, short sprouts with yellow heads. I stared at the flooded group for a long time - it was exactly the group I had believed was living the good life. The conclusion ran against my belief: the water mung beans need to sprout is dampness, not soaking.

In my lab report I wrote: my guess was overturned by my own data. I handed it in a little unwillingly, but the science teacher wrote beside it: being persuadable by evidence is a harvest more important than the result. I turned that sentence over for a long time and slowly tasted its meaning. Before, whether doing problems or arguing with people, I would plant my side first and then hunt for statements that supported me. The experiment forced the reverse: set the rules first, then look at the data, and if the data says no, I have to say no.

That reversal later moved into my physics study. In my mistake notebook I no longer copy only the correct answer; I first write down the wrong idea I had at the time, then write why the evidence will not tolerate that idea. Once during a monthly exam, my first reaction to a buoyancy problem was still the old intuition. My pen paused, and I asked myself: against which set of evidence can this intuition stand? I held on to that point in the end.

The scientific thinking the experiment taught me, I sum up in one sentence: guesses may be bold, but no favoritism is allowed in front of evidence. That a person can be overturned by his own experiment and still accept it gracefully - that, I think, is the most durable thing science leaves in a person.