动手做，才有发现：从一杯冒泡的醋说起

亲爱的老师们、同学们：大家好！我今天演讲的题目是《动手做，才有发现》。先问大家一个问题：科学是什么？是课本上那些要背的定义吗？一年以前，我也这么认为。直到那个星期六的下午，我在自家厨房里，亲眼看见一杯白醋变成了一座喷发的小火山。

那天我在课本上读到小苏打和醋混合会产生气泡，心里想，不就是气泡吗，汽水里全是气泡。可是妈妈鼓励我自己做一遍。我找来一个杯子，倒进半杯白醋，滴了两滴红色的食用色素，然后用勺子舀了一勺小苏打，屏住呼吸，倒进杯子。就在小苏打碰到醋的那一瞬间，红色的泡沫呼啦一下涌上来，越涌越高，漫过杯口，顺着杯壁往下流，像真的岩浆从火山口淌下来。我吓得往后跳了一步，然后又忍不住凑近去看。那一刻，书上那句会产生二氧化碳气体，忽然不再是要求背诵的句子，它变成了我亲眼看见、亲手制造的东西。

那次实验给了我一个至今受用的启发：眼睛看过的，会忘记；手做过的，才真正属于自己。后来学植物的向光性，我把花盆转了个方向，三天后嫩芽真的扭了回来；学溶解，我把糖和沙子分别放进水里搅，看着一个消失一个沉底。每做一次，我就多一个自己发现的秘密，而这些秘密，是别人抢不走、考试也压不垮的。

同学们，我们常常觉得自己离科学很远，以为那是科学家在实验室里穿白大褂干的事。其实不是。科学就在我们的手里：一杯水、一块糖、一支蜡烛、一张纸巾，都能提出问题，都能动手验证。所以我在这里向大家倡议：从今天起，每周至少动手做一次小实验，哪怕只有五分钟；做的时候多问一句为什么，别急着要答案；失败了也别扔，塌了、浑了、没反应，都是实验在跟你说话。我们还可以在班级里办一个小小实验角，把自己的发现讲给大家听。

同学们，别只做作业的观众，去做发现的当事人。当你亲手让泡沫涌出杯口的那一刻，你就会明白：科学从来不躲在书里，它躲在我们的双手后面，等着我们动手，把它请出来。我的演讲完毕，谢谢大家！

Do It with Your Own Hands, and You Will Discover: It Started with a Cup of Bubbling Vinegar

Dear teachers and fellow students: good morning! The title of my speech is Do It with Your Own Hands, and You Will Discover. Let me begin with a question: what is science? Is it the definitions we memorize in textbooks? A year ago, I thought so too — until one Saturday afternoon, in my own kitchen, I watched a cup of vinegar turn into an erupting little volcano.

That day I read in the textbook that baking soda mixed with vinegar produces bubbles, and I thought, so what? Soda water is full of bubbles. But my mother encouraged me to try it myself. I found a cup, poured in half a cup of white vinegar, added two drops of red food coloring, then scooped a spoonful of baking soda, held my

breath, and dropped it in. The instant the powder touched the vinegar, red foam surged up, higher and higher, over the rim, running down the cup wall like real lava flowing from a crater. I jumped back in surprise, then could not resist leaning closer. In that moment, the sentence carbon dioxide gas is produced stopped being something I had to recite. It became something I had seen with my own eyes and made with my own hands.

That experiment gave me a lesson I still carry: what the eyes see, we forget; what the hands do, we truly own. Later, when we studied how plants grow toward light, I turned my flowerpot around, and three days later the sprout really twisted back. When we studied dissolving, I stirred sugar and sand into separate glasses of water and watched one vanish while the other sank. Every experiment added one more secret I discovered myself — and these secrets cannot be taken away by anyone, or crushed by any exam.

Fellow students, we often feel science is far from us, as if it belongs to scientists in white coats inside laboratories. It does not. Science is right in our hands: a cup of water, a cube of sugar, a candle, a tissue — any of them can raise a question, any of them can be tested. So here is my proposal to everyone: starting today, do at least one small experiment with your own hands every week, even if it takes only five minutes; when you do it, ask one more why, and do not rush for the answer; and if it fails, do not throw it away — a collapse, a cloudiness, no reaction at all, is the experiment speaking to you. We can also set up a little experiment corner in our classroom and share our discoveries with each other.

Students, stop being an audience of homework and become the main character of discovery. The moment you make foam overflow a cup with your own hands, you will understand: science never hides inside books. It hides behind our hands, waiting for us to act and invite it out. Thank you all!

让纸飞机飞得更远，靠的不是运气：一次实验带给我们的启示

敬爱的老师、亲爱的同学们：大家好！我演讲的题目是《让纸飞机飞得更远，靠的不是运气》。上个月，咱们班举行了纸飞机大赛。我折了一只自认为最帅的飞机，轮到我扔的时候，我用尽全力一掷——它像一块石头，栽在离我三米远的地方。而同桌那只看起来普普通通的飞机，轻轻一转，飞到了教室最后一排。同学们都笑我，有人说我运气不好。可是那天晚上我躺在床上想：真的只是运气吗？

第二天，我把同桌的飞机和我的飞机放在一起，一张一张拆开对比。我发现他的机翼又宽又平，我的机翼窄窄地翘着；他的机头折了好几层，沉甸甸的，我的机头轻飘飘。我把这些不同一

条条记下来，然后开始做实验。第一次，我把自己的机翼折宽，飞机从三米飞到了六米；第二次，我在机头多折两层，它稳稳地滑到了九米；第三次，我把两个改动合在一起，它撞上了黑板。我这才明白，不是改得越多越好，两个改动加在一起，飞机太重了。于是我只保留机头的配重，把机翼调回原来的宽度，第七次试飞，它飞过了整个教室，落在最后一排的桌脚旁。

从三米到教室尽头，我一共试了七次。这七次里没有一次靠运气，每一次都是改一个地方、扔一次、看结果、再改下一个。实验教会我的道理，比名次重要得多：猜一百次，不如做一次；输了不要怪命，要把输的原因一条条拆出来。

同学们，我们每天都会有那么多为什么：为什么他的飞机飞得远？为什么盐化在水里糖却化得慢？为什么影子早上长中午短？这些问题，光靠猜是猜不出来的，光靠问别人，答案也是别人借给你的。只有自己的手才能给自己一个真正的答案。所以我倡议：第一，遇到疑问，先想一个办法自己动手验证，哪怕只是两杯水、一张纸；第二，做实验时一次只改一个地方，不然你不知道是哪一步帮了你；第三，把失败的那几次也记下来，它们和成功一样珍贵。下学期，我们全班再来一场纸飞机大赛，用实验说话，不用运气说话。

同学们，把手举起来，把纸拿出来，把疑问交给实验去回答。你会发现，科学的大门不锁着，它一推就开，而推门的力气，就在我们小小的手里。谢谢大家！

Making a Paper Plane Fly Farther Is Not Luck: Lessons from One Experiment

Respected teachers, dear fellow students: good morning! My speech is titled Making a Paper Plane Fly Farther Is Not Luck. Last month our class held a paper plane contest. I folded a plane I thought was the coolest of all, and when my turn came I threw it with all my strength — it dropped like a stone three meters away. My deskmate's plain-looking plane, given a gentle toss, glided all the way to the last row. Everyone laughed at me. Some said my luck was bad. But that night, lying in bed, I asked myself: was it really just luck?

The next day I put his plane and mine side by side and unfolded them one by one to compare. His wings were wide and flat; mine were narrow and curled up. His nose was folded many times over, heavy and solid; mine was light and airy. I wrote down every difference, then began experiments. First try: I widened my wings, and the plane went from three meters to six. Second try: I added two more folds to the nose, and it glided steadily to nine meters. Third try: I combined both changes — and it crashed into the blackboard. That taught me more changes are not better changes: together they made the plane too heavy. So I kept only the nose weight, returned the wings to their original width, and on the seventh test flight it crossed the entire classroom and landed by the feet of the last-row desk.

From three meters to the far end of the room, I made seven attempts. Not one of them relied on luck. Each one changed a single thing, threw, watched the result, then changed the next. The lesson the experiment taught me matters far more than the ranking: guessing a hundred times is worth less than doing it once; when you lose, do not blame fate — take the reasons apart one by one.

Fellow students, every day we carry so many whys: why does his plane fly farther? Why does salt vanish in water while sugar is slower? Why are shadows long in the morning and short at noon? Guessing will never answer these, and asking others only borrows their answers. Only your own hands can give you an answer that is truly yours. So I propose: first, when a question appears, think of a way to test it yourself, even if it takes just two cups of water or one sheet of paper; second, change only one thing at a time, or you will never know which change helped; third, write down the failed attempts too — they are as precious as the successes. Next term, let the whole class hold a rematch of paper planes, and let experiments speak instead of luck.

Students, raise your hands, take out your paper, and hand your questions over to experiments to answer. You will find that the door of science is not locked. It opens with a push, and the strength to push it lies right in our small hands. Thank you!

让鸡蛋浮起来的那把盐，撒进我们的心里

老师们、同学们：大家好！我演讲的题目是《让鸡蛋浮起来的那把盐，撒进我们的心里》。先请大家想象一个画面：讲台上放着一只玻璃杯，杯里是清水，一枚鸡蛋安安静静躺在杯底，像一块睡着的石头。老师问：谁能让它浮起来？教室里立刻热闹起来。有同学说把杯子斜过来，有同学说把鸡蛋捏轻一点，还有同学说，除非鸡蛋里灌了气。老师笑一笑，只从口袋里掏出一个纸包——盐。

那是上周科学课的演示实验。老师舀第一勺盐，搅动，鸡蛋一动不动；第二勺，还是不动；第三勺，鸡蛋好像晃了一下，也许是眼花；第四勺、第五勺，教室里越来越安静，所有人都站了起来。当老师倒下第六勺盐、玻璃棒慢慢转圈的时候，那枚鸡蛋离开了杯底，悬在水中，然后一点、一点，慢悠悠地浮了上来，圆滚滚的脑袋探出水面，像一个憋了很久终于冒泡的小胖墩。全班哗然，掌声啪地炸开。我看到前排的同学眼睛亮得像装了灯。

同学们，这就是实验的魔力。一枚沉底的鸡蛋，一杯盐水，就能把所有人都觉得不可能的事变成眼前的事实。可是那天回家后我想了很久：最可惜的是什么？不是别人家的孩子会做这个实验，而是我们自己明明可以亲手做，却只在教室里看老师做了一次。那六勺盐，本来应该由我们的手一勺一勺撒进去；那声惊呼，本来应该在我们自己的厨房里炸开。

所以今天，我想把这份倡议撒进大家心里，像盐撒进水里一样。第一，别相信眼睛看到的就

是全部。鸡蛋在清水里沉、在盐水里浮，变的是水，不是鸡蛋。世界藏着许多这样的机关，等着动手的人去发现。第二，准备你自己的实验箱：厨房就是实验室，盐、糖、油、醋、杯子、筷子，全是器材；每个周末挑一个为什么，动手试一次。第三，把发现讲出来。你让鸡蛋浮起来了，就讲给同桌听；同桌的醋泡蛋壳变软了，也讲给你听。一个人的发现变成五十个人的发现，我们班就成了一个小小的科学舰队。

同学们，科学不在远方，科学在每一勺盐里，在每一次搅拌里，在每一声原来如此的惊呼里。愿我们都不做讲台下看实验的人，而做那个亲手把鸡蛋唤醒的人。让那把盐，撒进我们的心里；让每一次动手，都成为我们长大的声音。我的演讲完了，谢谢大家！

The Spoonfuls of Salt That Float an Egg — Let Them Fall into Our Hearts

Teachers and fellow students: good morning! My speech is titled The Spoonfuls of Salt That Float an Egg — Let Them Fall into Our Hearts. First, picture this: on the podium sits a glass, filled with plain water, and an egg lies quietly at the bottom like a sleeping stone. The teacher asks: who can make it float? The classroom buzzes at once. One classmate says tilt the glass; another says squeeze the egg lighter; a third says unless someone pumped air inside it. The teacher only smiles and takes a paper packet from a pocket — salt.

That was the demonstration in last week's science class. The teacher added the first spoonful of salt, stirred, and the egg did not move. The second spoonful — still nothing. The third, the egg seemed to tremble, or maybe our eyes played tricks. Fourth spoonful, fifth, and the room grew quieter and quieter until every single one of us was standing. When the teacher poured in the sixth spoonful and the glass rod turned slowly in circles, the egg lifted off the bottom, hung in the middle of the water, then rose, bit by bit, unhurried, until its round head broke the surface like a chubby kid finally surfacing after holding its breath. The class erupted; applause burst out. I saw the front row with eyes shining as if someone had lit lamps inside them.

Fellow students, this is the magic of experiments. One sinking egg and a glass of salt water can turn what everyone called impossible into a fact right before our eyes. But I thought about it long after going home that day: what is the real pity? Not that children somewhere else can do this experiment, but that we ourselves could have done it by hand, yet only watched the teacher do it once in class. Those six spoonfuls of salt should have fallen from our own hands, one by one; that gasp of wonder should have exploded in our own kitchens.

So today I want to scatter this proposal into your hearts, the way salt scatters

into water. First, do not believe that what your eyes see is the whole story. The egg sinks in fresh water and floats in salt water; what changed was the water, not the egg. The world hides many such tricks, waiting for those who act to find them. Second, prepare your own experiment box: your kitchen is a laboratory — salt, sugar, oil, vinegar, cups, chopsticks, all are instruments; pick one why each weekend and test it once with your hands. Third, speak your discoveries out loud. You floated an egg — tell your deskmate; your deskmate's vinegar-soaked eggshell turned soft — let it tell you. When one discovery becomes fifty discoveries, our class becomes a little science fleet.

Students, science is not far away. Science lives in every spoonful of salt, every stir, every gasp of oh, so that's why. May none of us remain spectators beneath the podium watching experiments; may we be the ones who wake the egg with our own hands. Let that handful of salt fall into our hearts, and let every act of doing become the sound of us growing up. Thank you all!