鸡蛋浮起来以后，讨论才真正开始

公开课讲浮力，备课时我把最重的砝码押在了实验上。我想赌一把：与其把阿基米德原理讲三遍，不如让一枚鸡蛋自己浮起来，让孩子们自己去追那个为什么。

课堂演示从一枚沉底的鸡蛋开始。我把鸡蛋轻轻放进清水杯，它直直地躺下，像块小石头。我问：谁能不碰鸡蛋、不往外倒水，让它浮起来？教室里安静下来，四十张脸对着那杯水，没有一只手举起来。我往水里一大勺一大勺地加盐，搅拌，第三勺下去，鸡蛋犹犹豫豫地离开了杯底，悬在半中腰。前排几个孩子把脸贴到桌沿上，鼻尖快碰到杯子了。

分组实验随即开始。每组一杯水、一袋盐、一枚鸡蛋、一把小勺。任务单上只有一行字：想办法让你的鸡蛋浮到水面，记录你用了多少勺盐。教室瞬间变成厨房加集市。有的组猛倒盐，水都浑了鸡蛋还没动静；有的组学乖了，边加边搅；靠门的组鸡蛋破在第三勺盐上，全组围着那只破碗哀悼了三秒，又领了一枚重来。我巡着各组走，听见最多的词是再加一勺。

浮起来的那一刻，各组不约而同地爆发欢呼，声浪一波压着一波。但我心里清楚，这节课真正的重头戏还在后面——讨论。我让各组汇报勺数，从三勺到九勺都有。为什么差这么多？有孩子说是盐没搅化，有孩子说是鸡蛋有大有小，还有个孩子说：老师，死海是不是就是一大杯这样的盐水？我顺势把死海的照片投上屏幕，讨论一下子烧开了，有人问死海里能不能游泳，有人问盐水放凉了浮力会不会变小。

下课铃响时，没人立刻离开。有个女孩端着杯子问我：老师，我能把它带回家，看明天鸡蛋会不会变胖吗？我笑了，说好，写观察日记。

晚上评课，教研组长说这节课讨论环节最亮。我在反思里写：演示是点火，分组是添柴，讨论才是那团真正烧起来的火。孩子提的死海和变胖的鸡蛋，比我准备的任何例题都珍贵。教育意义不在我嘴里，在他们追着盐水跑的那半节课里。

After the Egg Floated, the Discussion Truly Began

For the open class on buoyancy, I placed my heaviest bet in the lesson plan on the experiment. I wanted to gamble: rather than explain Archimedes' principle three times, let an egg float up on its own and let the children chase the why themselves.

The demonstration began with an egg sinking to the bottom. I lowered it gently into a cup of fresh water; it dropped straight down and lay there like a small stone. I asked: who can make it float without touching the egg or pouring water out? The room went quiet, forty faces facing that cup of water, not one hand raised. I added salt to the water spoonful after generous spoonful, stirring; after the third, the egg hesitantly left the bottom and hung in mid-water. Several children in the front row pressed their faces to the edge of the desk, noses nearly touching the glass.

Group work started immediately. Each group got a cup of water, a bag of salt, one egg, and a small spoon. The task sheet had a single line: find a way to float your

egg to the surface, and record how many spoonfuls of salt it takes. The classroom instantly became a kitchen crossed with a market. One group dumped salt wildly - the water turned murky, the egg stayed put. Others learned quickly, adding while stirring. The group by the door lost their egg to the third spoonful of salt; the whole group mourned around the broken bowl for three seconds, then collected a new egg and started over. As I walked the aisles, the most common phrase I heard was one more spoonful.

The moment each egg floated, groups erupted in cheers in unison, wave upon wave of sound. But I knew the real centerpiece was still ahead - the discussion. I had each group report its spoon count, ranging from three to nine. Why such a difference? One child said the salt wasn't fully stirred; another said eggs come in different sizes; still another asked: Teacher, is the Dead Sea just one giant cup of this salt water? I projected a photo of the Dead Sea onto the screen, and the discussion caught fire all at once - could you swim in the Dead Sea, would the salt water lose buoyancy after cooling down.

When the bell rang, nobody left right away. A girl held up her cup and asked: Teacher, may I take it home and see if the egg gets fatter by tomorrow? I smiled and said yes - write an observation diary.

At the evening critique, the teaching research group leader said the discussion segment was the brightest part of the lesson. In my reflection I wrote: the demonstration is the spark, group work is the kindling, and the discussion is the fire that actually burns. The Dead Sea and the fattening egg that the children raised are more precious than any worked example I had prepared. The educational meaning does not live in my mouth; it lives in that half-class hour when they chased the salt water.