朵朵的观察日记

科学老师布置了一项观察作业，观察一种变化，写观察日记。朵朵想了半天，决定观察苹果。她觉得苹果最普通，普通的东西发生变化，才最有意思。

第一天，朵朵请妈妈帮她切苹果。妈妈把苹果切成四瓣，朵朵挑了一瓣放在白瓷盘里，趴在桌上看。十分钟，瓣的边缘泛起一点点黄。半小时，黄变成了浅褐，像给苹果描了个边。两小时以后，整瓣苹果都褐了，摸上去还有点黏。朵朵在日记里写：苹果放着放着，自己给自己穿了件褐色的旧衣裳。

第二天，朵朵问妈妈，苹果为什么会自己变颜色。妈妈没有直接说答案，先问她，苹果被刀切开以后，什么地方露出来了。朵朵说果肉。妈妈说，果肉里住着一种看不见的酶，一碰到空气里的氧气，两个小家伙就闹到一块儿，果肉就褐了。这个事有个学名，叫氧化。朵朵又问，那整个的苹果为什么不褐。妈妈拿起一整个苹果举到她眼前：你看，皮在值班呢。

第三天，朵朵给日记加了对比。她切了三瓣苹果，一瓣泡在凉白开里，一瓣抹了盐水，一瓣泡在柠檬水里。中午看，泡清水的褐得最快，盐水的那瓣只褐了一圈，柠檬水里的还是白的。朵朵在日记里画了三个小苹果，给它们标上名次：柠檬水第一，盐水第二，清水第三。她在旁边写了一句：原来空气是个调皮鬼，盐水柠檬水能把它拦在门外。

第四天，朵朵把日记念给全班听。念完，有同学举手问，褐了的苹果到底能不能吃。朵朵说能，她昨天把褐的那瓣吃了，就是味道差一点。全班笑。老师让朵朵给这组观察起个名字，朵朵想了想说，就叫苹果穿衣裳。

周末，朵朵的日记本上多了妈妈写的一行字：会观察的孩子，眼睛像放大镜。朵朵把这一行看了三遍，然后翻开新的一页，写下新的题目：橘子皮里的小喷泉。她打算先自己猜，猜不出再去问妈妈。

后来朵朵养成了一个习惯，家里每次切苹果，她都抢着用柠檬汁抹一遍。妈妈问她是怕浪费实验成果吗。朵朵摇头，说她是在帮苹果值班，不让调皮鬼空气进去捣乱。她说这话的时候特别认真，像在宣布一件顶顶重要的大事。

The Observation Diary of Duoduo

The science teacher assigned an observation project: watch one kind of change and keep an observation diary. Duoduo thought for a long time and decided to observe apples. She felt apples were the most ordinary things of all, and it is the ordinary things that become most interesting when they change.

On the first day Duoduo asked her mother to help her cut an apple. Her mother cut it into quarters, and Duoduo chose one quarter and set it on a white porcelain plate, leaning over the table to watch. In ten minutes the edges of the flesh took on a faint yellow. In half an hour the yellow had become light brown, like a drawn border around the apple. Two hours later the whole quarter had turned brown, and it felt a

little sticky to the touch. Duoduo wrote in her diary: the apple, just sitting there, dressed itself in an old brown coat.

On the second day Duoduo asked her mother why the apple changes color by itself. Her mother did not give the answer straight away. She first asked what was exposed after the knife cut the apple. Duoduo said the flesh. Her mother said that inside the flesh lives an invisible enzyme, and the moment it meets the oxygen in the air, the two little rascals get tangled up together, and the flesh turns brown. The thing has a school name: oxidation. Duoduo asked, then why does a whole apple not turn brown. Her mother held a whole apple up before her eyes: look, the skin is on duty.

On the third day Duoduo added a comparison to her diary. She cut three apple quarters, soaked one in plain boiled water, brushed one with salt water, and soaked one in lemon water. At noon she checked: the one in plain water browned fastest, the salted one browned only in a ring, and the one in lemon water stayed white. In her diary Duoduo drew three little apples and ranked them: lemon water first, salt water second, plain water third. Beside them she wrote one line: so the air is a mischief-maker, and salt water and lemon water can turn it away at the door.

On the fourth day Duoduo read her diary aloud to the class. When she finished, a classmate raised a hand and asked whether a browned apple can actually be eaten. Duoduo said yes, she had eaten the brown quarter from yesterday, it just tasted a little worse. The whole class laughed. The teacher asked Duoduo to give her observation series a name. Duoduo thought a moment and said, call it The Apple Gets Dressed.

On the weekend a line from her mother appeared in the diary of Duoduo: a child who observes has eyes like a magnifying glass. Duoduo read that line three times, then opened a fresh page and wrote a new title: The Little Fountain Inside an Orange Peel. This time she planned to guess by herself first, and only ask her mother if guessing failed.

After that Duoduo formed a habit: every time the family cut apples, she fought to be the one who brushed them with lemon juice. Her mother asked whether she was afraid of wasting the experiment. Duoduo shook her head and said she was helping the apple on its watch, keeping the mischief-maker air from getting in. She said it with great seriousness, as if announcing the most important business in the world.