

## WEEKEND SCIENCE

**WELCOME** to Weekend Science! Every Saturday we're going to guide you through some cool experiments that you can do at home. It's a good idea for you to keep a record of what you do in a Science Journal. That way you can record what you learn, compare results and maybe use them to design new experiments! Remember to always ask a grown-up's permission before trying out an experiment.

歡迎閱讀《週末科學版》！我們每週六都要為你介紹可以在家中進行的有趣科學實驗。你可以在《科學日誌》中記錄自己做了哪些活動，這樣就可以將所學的記錄下來，比較這些結果，也許還可以利用它們來設計新的實驗！先看一下《科學日誌》的點子再開始吧。展開實驗之前，記得要獲得大人許可喔！



## Shocking behavior!

來電了！

If you've ever received a **shock** from touching a door handle after walking over a carpet, then you've already had first hand experience of static electricity. Unfortunately, a lot of experiments that are designed to produce static electricity don't seem to work very well. However, if you follow the instructions closely, today's experiment is guaranteed to work.

假如你曾走過地毯後手摸門把被電到，那你就已經有了直接接觸靜電的經驗。

可惜的是，許多設計來產生靜電的實驗，效果都不怎麼好。不過，如果你仔細按照指示進行，今天的實驗保證成功。

What you will need: a styrofoam plate, a styrofoam cup, an aluminum **tray**, some glue and a wool sock.

實驗所需：一個保麗龍盤、一個保麗龍杯、一個鋁箔托盤、膠水和一隻毛襪。

### METHOD- OLOGY

Step 1: Put some glue on the rim of the cup then stick it to the aluminum tray.

Step 2: **Rub** the sock on the styrofoam plate for at least a minute. The longer you rub it, the more likely it is that the experiment will work.

Step 3: Using the cup, pick up the tray and put it on the styrofoam plate. Touch the tray. When you touch it you will get a small shock.

### 方法

步驟一：將保麗龍杯的邊緣塗上膠水後，黏到鋁箔托盤上。

步驟二：在保麗龍盤上摩擦毛襪至少一分鐘。摩擦的時間愈久，實驗的成功率愈高。

步驟三：抓著杯子提起鋁箔托盤，然後將其放在保麗龍盤上。摸一下鋁箔托盤，你會被小小電到。

### TESTING

If everything worked well, the aluminum tray should be charged. Move it towards other objects and you will notice that it emits a **spark** when it gets close. There should be enough static in the tray to discharge quite a few sparks.

### 測試

如果一切進行順利，鋁箔托盤應該會充滿電荷。將其靠近其他物品，你會發現當鋁箔托盤靠近時會發出電火花。盤子上的靜電應該足以釋放出好幾個電火花。

### VOCABULARY 今日單字

1. **shock** / k/ n. 電擊 (dian4 ji2)
2. **tray** / tre/ n. 托盤 (tuo1 pan2)
3. **rub** / r b/ vi./v.t. 摩擦 (mo2 ca1)
4. **spark** / sp rk/ n. 電火花 (dian4 huo3 hua1)
5. **electron** / l ktr n/ n. 電子 (dian4 zi3)
6. **object** / b kt/ n. 物體 (wu4 ti3)

### WHY IT WORKS 實驗原理

When you rubbed the styrofoam plate in step two you gave it a negative charge. Then when you put the aluminum tray on the plate, the **electrons** in the styrofoam repelled the electrons in the tray. Because the tray is surrounded by styrofoam and air, it retains a negative charge. By touching the tray in step three, you gave it a positive charge.

Because the tray has a positive charge, it attracts electrons whenever it goes near another **object**. This attraction is what causes the spark.

(JOHN PHILLIPS, STAFF WRITER)

當你執行步驟二的摩擦保麗龍盤時，你讓盤子上產生負電荷。而當你將鋁箔托盤放在保麗龍盤上時，保麗龍盤上的電子和鋁箔托盤上的電子會互相排斥。因為托盤被保麗龍和空氣圍住，負電荷累積在其中。步驟三中你接觸托盤，提供了正電荷。

因為托盤帶著正電荷，所以它無論靠近什麼物體都會吸引其電子。這個吸引作用就是產生電火花的原因。

(翻譯：袁星塵)



bilingual@taipeitimes.com

Did you have fun with today's experiment? Why don't you e-mail us and let us know. We're always happy to hear from our readers!

喜歡今天的實驗嗎？歡迎來函指教！電子信箱：bilingual@taipeitimes.com

