TAIPEI 台北時報 TIMES

BILINGUAL TIMES

SATURDAY, APRIL 18, 2009

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！

Popcorn science
爆米花科學

Popcorn — no trip to the movies is complete without it. Yet popcorn predates the movies by thousands of years, with ancient South American civilizations fond of the crunchy treat. In recent years, the invention of the microwave has turned popcorn into a snack that is not only delicious, but is also fun and easy to make. But what is the cause of that distinctive popping sound? In today's experiment you will find out.

去看電影如果少了爆米花就不像看電影了。爆米花問世的時間比電影早數千年，南美古文明時期的人們就愛上這種鬆脆的點心了。近年來，微波爐的發明使爆米花成為一種既美味又好玩好做的點心。但它為甚麼會發出特別的啪啪聲呢？你將在今天的實驗中找到答案。

METHODOLOGY

What you will need: A bag of popcorn kernels, three bowls, a zipper lock bag, sticky labels and a pencil.

實驗所需：一包爆米花玉米粒、三個碗、一個密封袋、標籤貼紙和一枝鉛筆。

Step 1: Take the bowls and label them as follows: sunlight, freezer and refrigerator. Put exactly 100 kernels in each bowl and 100 kernels in the zipper lock bag. Put the zipper lock bag back in the cupboard and the other bowls in their respective places. Leave for three days.

Step 2: It's time to cook the popcorn in the microwave, so get all your bowls and notebook together. You are going to record two different results — the length of time for the first pop and the number of unpopped kernels after 90 seconds. You have to test each bowl one by one. Make sure you transfer the kernels in the zipper lock bag to a bowl before you start.

Step 3: Record the time of the first pop and count the number of unpopped kernels after 90 seconds. By the way, unpopped kernels are sometimes known as "old maids." If any of the popcorn looks edible, eat it!

方法

步驟一：將碗貼上下列標籤：陽光、冰庫、冰箱。在每個碗中放入剛剛好一百粒玉米粒，另外放一百粒在密封袋中。將密封袋放回櫥櫃中，將另外三個碗分別放到它們標籤上註明的位置。靜置三天。

步驟二：現在要用微波爐來爆爆米花了，所以將所有的碗和筆記本準備好。你將記錄兩個不同的結果——第一個玉米粒變成爆米花所花的時間，以及微波九十秒後仍未變成爆米花的玉米粒數目。一次只能測試一碗，記得要將那個密封袋內的玉米粒倒入碗中才能拿去微波。

步驟三：記錄下第一個玉米粒爆開的時間，並在微波九十秒後計算沒有爆開的玉米粒數量。順道一提，沒有爆開的玉米粒有時被稱為「old maids」（老處女）。如果爆完的爆米花看起來可以吃，就吃吧！

ANALYSIS
結果剖析

You should have discovered that the zipper locked popcorn popped the fastest and had the least old maids. Depending on the temperatures they were exposed to, the other kernels may not have popped at all.

The reason is simple. Kernels look dry but they are 14 percent water. The moisture is contained within a circle of starch at the center. When microwaved, the water expands and pressure inside the kernels grows, until it pops.

If you chill, freeze or warm up the kernels, the moisture dries out and they can no longer be popped. (JOHN PHILLIPS, STAFF WRITER)

你應該會發現最快爆開的爆米花是裝在密封袋中的，而且這組爆米花也是沒爆開玉米粒數最少的。另外幾組玉米粒可能因為之前接觸的溫度的關係，完全爆不開。

原因很簡單，玉米粒看起來乾乾的，不過其中有一成四是水分。水分就存在於玉米粒中心的一圈澱粉內。玉米粒被微波時，水分會膨脹且內部的壓力會變大，直到玉米粒爆開。（翻譯：袁星慶）

VOCABULARY
今日單字

1. crunchy /' kr' n' ' / adj.
嘎吱嘎吱響的 (ga1 zi1 ga1 zi1 xiang3 de5)，鬆脆的 (song1 cui4 de5)

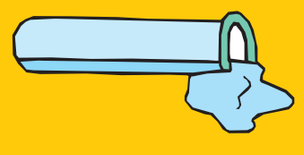
2. pop /p' p/ v.i./v.t.
啪一聲爆裂 (pa1 yi4 sheng1 bao4 lie4)

3. kernel /' k' nl/ n.
果粒 (guo3 li4)，果仁 (guo3 ren2)

4. edible /' ' d' bl/ adj.
可食用的 (ke3 shi2 yong4 de5)

5. moisture /' m' ' s' ' / n.
水分 (shui3 fen4)

6. pressure /' pr' ' ' / n.
壓力 (ya1 li4)



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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

P13 Bilingual 紅藍黃黑