BILINGUAL TIMES

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！

WEEKEND SCIENCE

Use it or lose it: memory workout!
記憶大考驗！

A senior citizen in San Diego, California, US on March 7, 2008 uses a brain stimulation product that can improve memory and other cognitive functions.   PHOTO: REUTERS
三月七日，美國加州聖地牙哥一名老人使用能增進記憶力和其他認知功能的腦部刺激產品。   照片：路透

The study of human memory is one of the most fascinating areas of psychology. Despite the research that has been conducted into memory, remarkable individuals continue to surprise us with their amazing feats of recall. For example, in 2006 Akira Haraguchi from Japan recalled pi to 100,000 decimal places over a 16-hour period.

Psychologists and neuroscientists typically talk about three types of memory: sensory, short term and long term. Sensory memory, sometimes called working memory, lasts just a few seconds, short-term memory last minutes or hours, while long-term memories can last a lifetime.

Memory is the brain's way of recording input from the five senses, with sight and sound typically being the most commonly used senses. In today's experiment, you will conduct tests on friends to find out if visual memory or auditory memory is strongest.

What you will need: pen and paper, a stopwatch and some friends (the more the better).   (JOHN PHILLIPS, STAFF WRITER)

研究人類記憶是心理學中最迷人的領域之一。儘管科學家已針對記憶進行研究，傑出人士卻不斷以其驚人的記憶力驚豔大眾。例如：二〇〇六年時，日本的原口證以十六小時的時間背誦出圓周率至小數點後十萬位數。

心理學家和神經科學家所討論的記憶，通常可分為三種類型：感覺記憶、短期記憶和長期記憶。感覺記憶有時又稱工作記憶，通常只會持續數秒鐘；短期記憶會持續數分鐘或數小時之久；長期記憶則會持續終生。

記憶是大腦記錄五種感官感受的方式，其中最常使用的就是視覺和聽覺。在今天的實驗中，你將對朋友進行一些小測驗，看看視覺記憶和聽覺記憶何者令人印象最深刻？

實驗所需：筆、紙、計時碼表和一些朋友（人數愈多愈好）。

(翻譯：袁星慶)

SET UP THE TEST   測驗準備

Step 1: You will need two random seven-digit numbers for your test subjects to remember. There are random number generators online if you want to ensure total randomness.

Step 2: Write one of the numbers on a piece of paper.

Step 3: Find a friend and tell them you want to conduct memory tests on them. It will take a couple of minutes.

步驟一：你需要兩組專供受試者記憶的七位數亂數。若要確保數字完全是隨機選取的，你可以利用網路上的亂數產生器。

步驟二：把其中一組數字寫在一張紙上。

步驟三：找來朋友，並告訴他們你要對他們進行記憶測驗。測驗會耗時幾分鐘。

CONDUCT THE TESTS   進行測驗

Step 1: The first test will be on the visual memory. Show your subject a random number and let them look at it for 30 seconds.

Step 2: Ask them to say the alphabet slowly. This is to make sure the working memory is emptied. Ask the subject to recall the number, and record how many consecutive numbers they got right.

Step 3: The second test is on the auditory memory. Read the second number to your subject three times, then repeat step two, recording the result.

Step 4: Repeat the entire procedure on at least ten people.

Step 5: Examine the results. By looking at the number of correct answers you will be able to tell if your participants had stronger auditory or visual memory.

步驟一：第一個測驗是視覺記憶測驗。拿一組亂數給受試者看三十秒。

步驟二：請他們慢慢唸出二十六個英文字母，這個步驟是為了確保受試者的工作記憶被清空。然後再請受試者回想那組數字，並記下他們正確說出的連續數字字數。

步驟三：第二個測驗是聽覺記憶測驗。唸三次第二組數字給你朋友聽，然後重複步驟二，記下測驗結果。

步驟四：對至少十個人重複這整個測驗程序。

步驟五：檢視結果。看看答對的數目，就可以得知受試者是聽覺還是視覺記憶比較好了。

VOCABULARY 今日單字

1. **psychology** /saɪkɒlədʒɪ/ n.
心理學 (xin1 li3 xue2)

2. **neuroscientist** /ˌnjʊərəʊˈsaɪəntɪst/ n.
神經科學家 (shen2 jing1 ke1 xue2 jia1)

3. **input** /ˈɪnpʊt/ n.
（大腦接收的）訊息 (da4 nao3 jie1 shou1 de5 xun4 xi2)

4. **visual** /ˈvɪʒʊəl/ adj.
視覺的 (shi4 jue2 de5)

5. **random** /ˈrændəm/ adj.
隨機的 (sui2 ji1 de5)

6. **participant** /pɑːˈtɪsɪpənt/ n.
參與者 (can1 yu4 zhe3)

@ **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