

GROUP 6



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官家慶



旅行行程計畫

2023.5.18

早上10:15 集合

早上10:20 開始入場科學中心

下午01:10 科學中心部分結束

~中場休息~

下午03:30 入場生命科學廳

下午05:00 科博館旅程結束

下午05:15 參觀地下道後，陸續解散回家

科學中心

CHAPTER 1
數理科學世界

CHAPTER 2
星球與宇宙

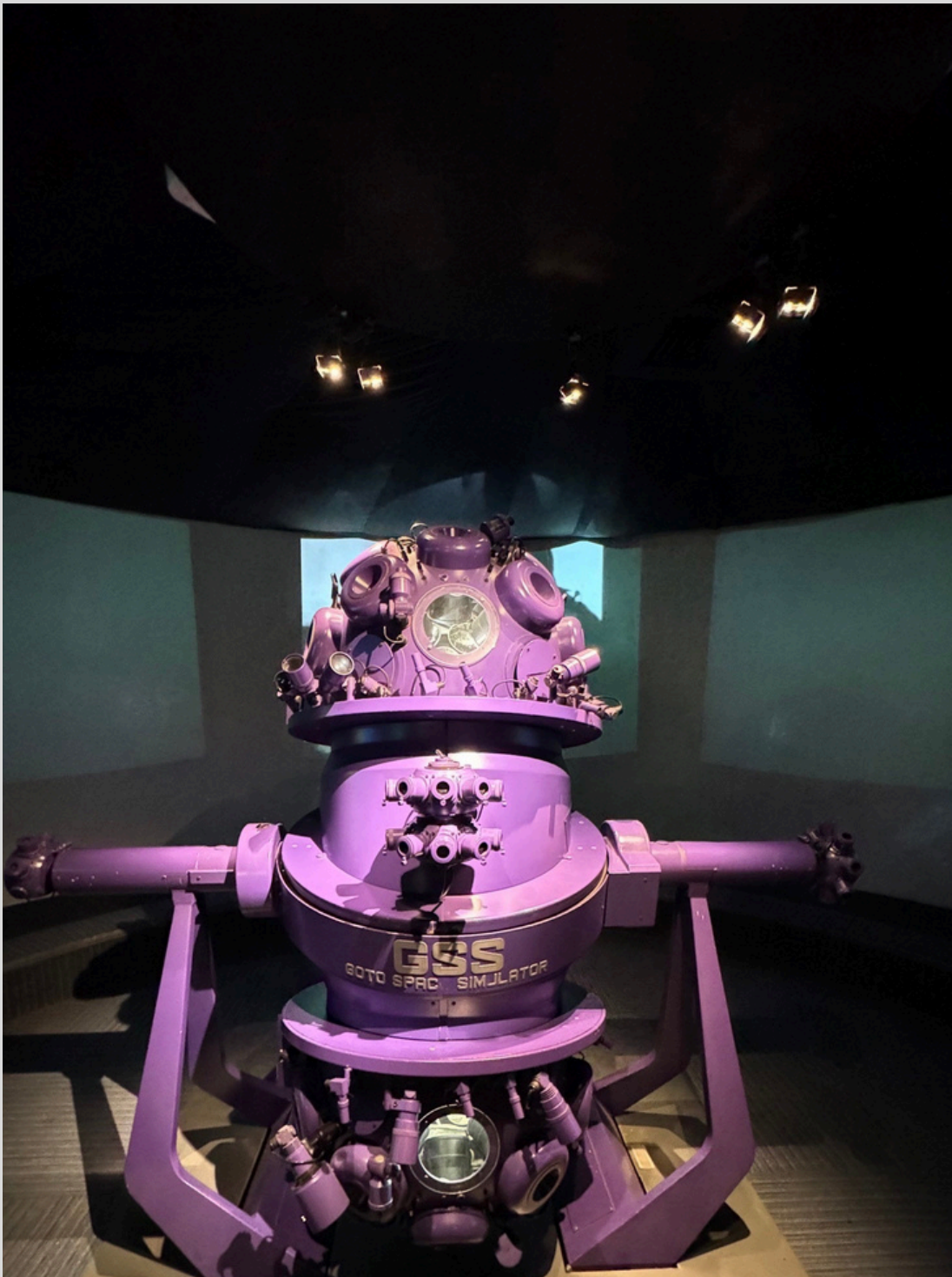
CHAPTER 3
奇妙的半導體世界



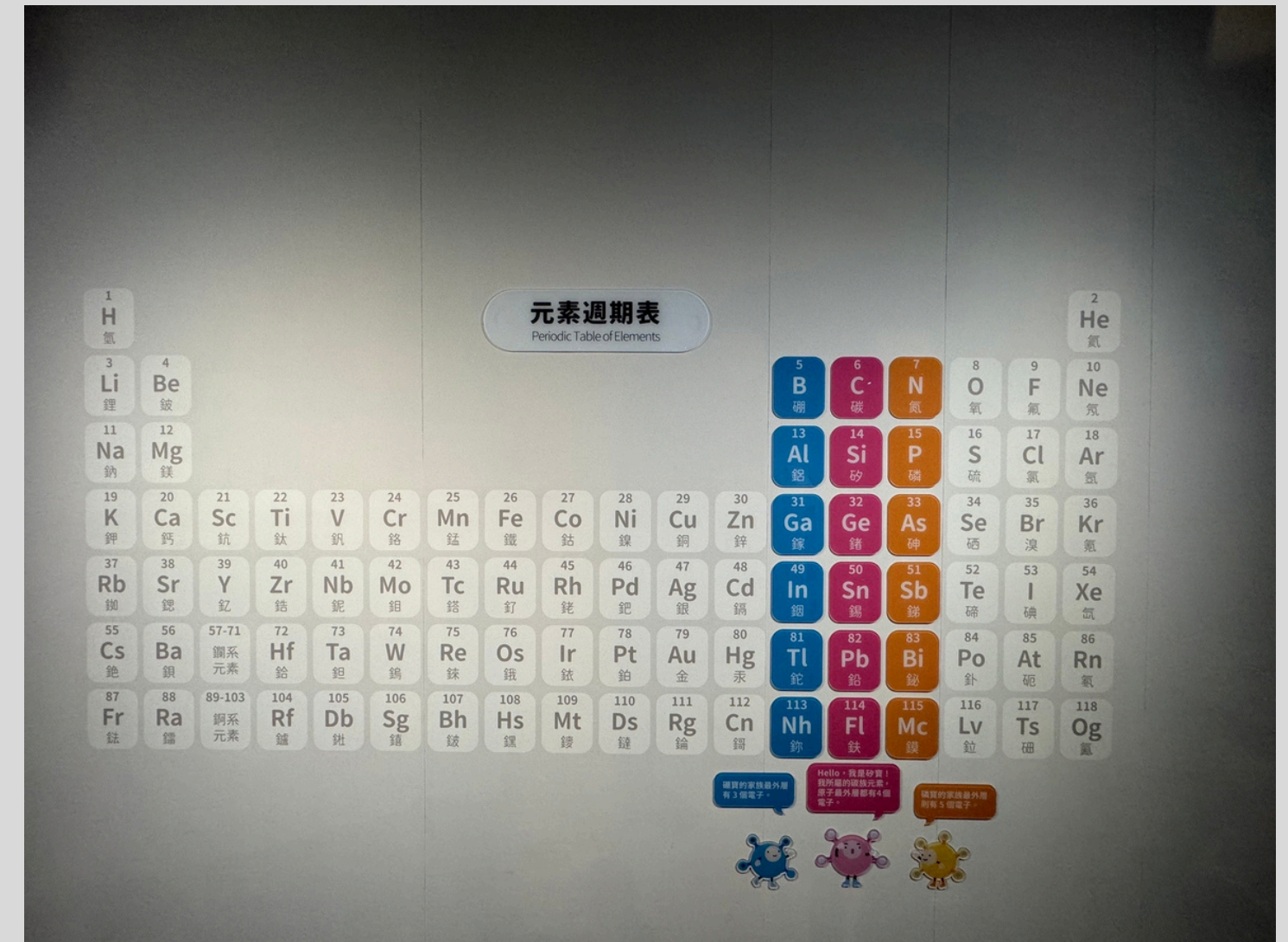
This is Newton's pendulum and a tornado in water. Physical phenomena can be understood through experiential activities.



Here are the asteroids and the planetarium.
The asteroid was discovered at Lulin Observatory in 2007. A planetarium is an instrument that can simulate the starry sky.



The second floor is the world of semiconductors. Learn about things used in the semiconductor industry through the periodic table of elements.



為什麼會發明電晶體?

Why Was the Transistor Invented?

在二十世紀初期至中期間，當時電子產品大都是以真空管做為主要電子元件。但是當電晶體技術成熟後，由於真空管成本高、不耐用、體積大、效能低，因此大部分的真空管就逐漸被半導體元件取代了。

During the early to mid-20th century, vacuum tubes served as the main electronic components for most electronic products. However, as the transistor technology matured, most vacuum tubes, due to high costs, low durability, bulk sizes, and low efficiency, were gradually replaced by semiconductor devices.

電晶體的誕生

The Birth of Transistor

電晶體是美國貝爾實驗室的威廉·肖克萊 (William B. Shockley)、約翰·巴丁 (John Bardeen) 和沃爾特·布拉頓 (Walter H. Brattain) 於1947年12月發明的。三人因電晶體的發明和應用獲得1956年諾貝爾物理學獎。當時的電晶體是一種稱為點接觸型的鍺電晶體，與現在常用的電晶體結構並不完全相同。

The transistor was invented in 1947 by William B. Shockley, John Bardeen, and Walter H. Brattain at the Bell Laboratories. The three were awarded the 1956 Nobel Prize in Physics for their research on semiconductors and their discovery of the transistor effect. The sponsored germanium transistor has a quite different construction from that of present-day transistors.




阿公的古早收音機

Grandpa's Antique Radio

1904年，英國的科學家弗萊明 (Sir John Ambrose Fleming) 發明了真空管。顧名思義，真空管是將電極封裝在真空玻璃管中。真空管具有控制電流及放大信號的功能，所以早期的收音機、電視機，甚至第一台電腦，都是使用真空管來製作的。電晶體也具有放大及放大的功能，而且比真空管體積更輕巧、更省電。1950年代電晶體收音機的發明，便逐漸取代笨重的真空管收音機。

In 1904, British scientist Sir John Ambrose Fleming invented the vacuum tube, which encloses electrodes in vacuum glass. Vacuum tubes can control the switch and amplify the signals in the circuit. The early radios, and even the first computer all used vacuum tubes. Like vacuum tubes, transistors can work as an amplifier or amplify the signals in the circuit. However, transistors are much smaller and save more energy. After being invented in 1950s, transistor radios gradually replaced the vacuum tube ones.





如房子般大的電腦

A Computer As Big As a House

第一部電腦ENIAC，由超過一萬七千支真空管所組成，佔地約167平方公尺，重達30噸，每秒執行5,000條指令。當時用來測試登陸月球設計的可行性。電晶體的發明使電腦體積變小，重量減輕，更加省電，這大幅提升了運算能力及儲存效率。讓電腦得以廣泛應用於政府機構與工業界。

The first computer, ENIAC, contained 17,468 vacuum tubes, occupied an area of 167 square meters and weighed 30 short tons. It executed 5,000 instructions per second and was used to study the feasibility of the early design of hydrogen bombs. The invention of transistor was revolutionary to the development of computers. Transistors made computers smaller in size, lighter in weight and more energy efficient. They also improved the computing power and decreased the failure rate of computers, enabling computers to be widely used by both the public and private sector.





生命科學廳

CHAPTER 1

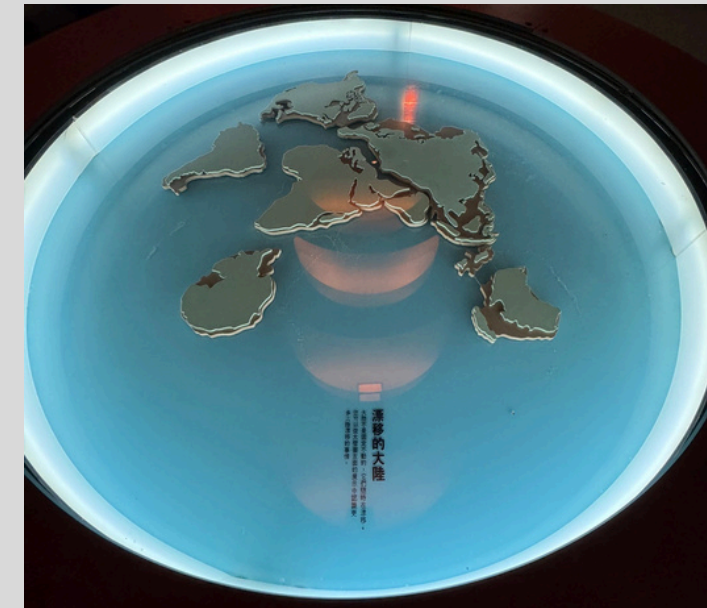
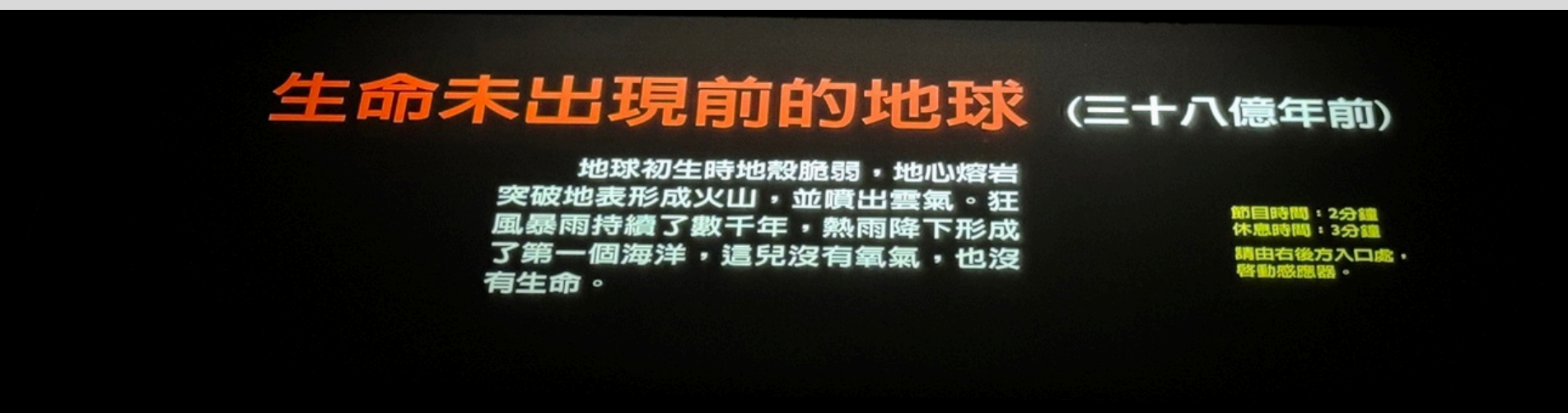
板塊運動與火山噴發

CHAPTER 2

恐龍、地球與人類

CHAPTER 3

動物的生態環境與標本

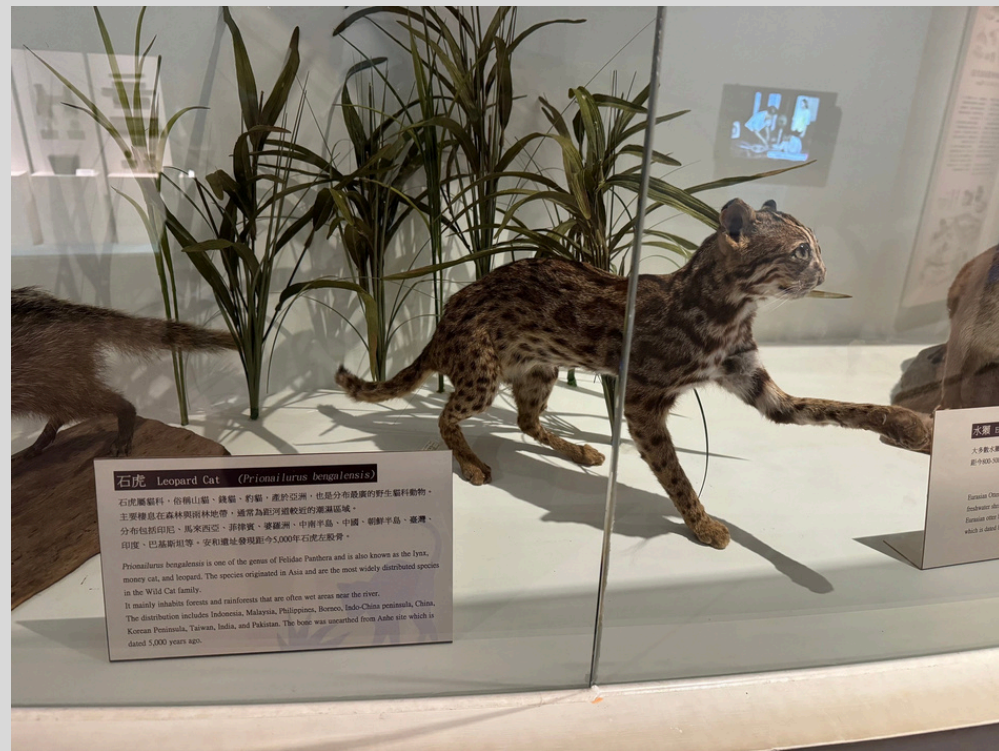


This is a demonstration model showing a volcanic eruption. In front of him there is a seat that vibrates with the screen. After sitting on it, you can feel the shock of the volcanic eruption more directly, and a model that simulates the movement of continental plates. This model can restore The entire continent looked like it did not move initially, and then moved over time.



The lifelike dinosaur model not only moved but also made terrifying roars. Many people took out their mobile phones to take photos and videos.






For mammal specimens, the living environment of the creatures will be restored in the display stand, and explanations will be provided to help people understand them better.




The giant squid specimen soaked in formalin is said to have been placed here for a long time.

聖保羅 大王魷魚



大王魷魚的天敵是抹香鯨，抹香鯨能夠下潛至大王魷魚的棲地獵殺牠們。海洋生物學家在抹香鯨的胃中發現許多大王魷魚的喙，證實牠們是抹香鯨的重要食物。當抹香鯨與大王魷魚纏鬥時，大王魷魚當然也會反擊，牠們觸腕上的吸盤及利齒可以擊傷抹香鯨。我們常在捕獲的抹香鯨身上發現呈圓圈狀的疤痕，這些大多是大王魷魚的傑作。

大王魷魚的生活史仍是一個謎，每年12月到3月間，聖保羅大王魷魚會出現在紐西蘭海域，在較淺處進行生殖，4月之後便消失無蹤，可能具有洄游的習性，但產卵地及其他生活史則一無所知。本館前客座研究員盧重成教授發現，生殖時，雄性大王魷魚會將精莖植入雌性的皮膚內保存，至於如何受精？如何產卵？產卵在何地？仍是一連串的謎題。



SOGO/第六市場地下
道



Anti-Extradition Law Amendment Bill Movement



SEEING THE NEW PALCE

When we walked in here, we felt like we had entered a whole new world. Everything here was so wonderful and interesting. We also learned a lot of knowledge and broadened our horizons here. The explanation board here explains in a very concise way, making it easy to understand, but also complete and informative. I'm so lucky to have chosen this place as my travel destination.

MEETING NEW PEOPLE

In planning this trip, everyone was very attentive in planning this group trip. Whether it was everyone's opinions and ideas, or the level of enthusiasm, I felt everyone's sincerity, even though everyone has just met classmates who have just completed their first semester. , but I believe we have established wonderful college memories and friendships during this time.

PROSPECTING THE NEW WORLD

At the Science and Technology Museum, we came into contact with the things inside through planning group trips and felt human wisdom and the human spirit of keen to discover facts when facing unknown things. These spirits are the crystallization of human wisdom and precious spirit. . In this course I learned that we should have a soul that has the courage to explore the world in order to discover the beautiful things in life.

何天恩 上台報告

周智堯 影像攝影

林伽仔 簡報製作

官家慶 策劃與成果訂正

THANK YOU
EVERYONE