

THE HONG KONG JOCKEY CLUB SERIES

香港賽馬會呈獻系列

7.12.2018 - 10.4.2019

匠心獨運

Treasures of Time

鐘錶珍寶展

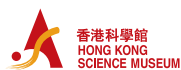


教師指南
Teachers' Guide

聯合主辦
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簡介

自古以來，人類非常重視季節的變化和觀象測時。為了更準確測量時間，古人發明了各式各樣的工具和儀器。在各種計時儀器中，以明末清初，由西方傳教士傳入中國的西洋鐘錶，算是最可靠和最方便的計時器。由於這些「新產品」設計精巧，不但報時準確，還設置了很多機械裝置，待上弦啟動後，音樂隨之響起，裝飾的鳥獸不斷來回走動，花旋人轉，令人目不暇給，因此清代皇室特別喜愛這些機械鐘錶，大量收藏，作為裝飾擺設。其後清宮內更設置造辦處，開始製作機械鐘錶，並由最初的仿製，逐步形成了自己獨特的風格和設計。

「香港賽馬會呈獻系列：匠心獨運 — 鐘錶珍寶展」融合科學、歷史和藝術，讓觀眾透過欣賞這些精美的機械鐘錶，從科學角度認識時間的意義、鐘錶的操作原理，以及鐘錶背後的文化交流、歷史意義和科技成就。展覽將展出約 120 件來自故宮博物院收藏的機械鐘錶，這些鐘錶大部分來自英國、法國和瑞士，也有部分是由清宮造辦處和廣州製造。而其中數件英國鐘錶更是剛於近年完成修復工作，首次在故宮博物院以外地方展出。另外，倫敦科學博物館更特別借出多件十八世紀英國工匠在製作鐘錶時，所使用的工具，展覽中亦會設置十八世紀歐洲工匠的工作間，呈現工匠們製造鐘錶的情景。除了珍貴文物，展覽還採用多項新媒體科技、電腦動畫、實物模型、互動展品等，以輕鬆活潑的手法為大家介紹中國古代的計時器，機械鐘錶以至原子鐘的科學運作原理。觀眾除了可以近距離欣賞這珍貴鐘錶之外，我們更特別邀請故宮博物院的專家赴港進行鐘錶演示活動，讓觀眾感受時間的流逝，學懂珍惜。

康樂及文化事務署和故宮博物院 聯合主辦

香港科學館、故宮博物院和倫敦科學博物館 聯合籌劃

香港賽馬會慈善信託基金 獨家贊助

支持機構：中國科學技術館

參觀資料

展期：2018 年 12 月 7 日至 2019 年 4 月 10 日

地點：香港科學館地下展覽廳

開放時間：

星期一至三、五：上午 10 時至晚上 7 時

星期六、日及公眾假期：上午 10 時至晚上 9 時

聖誕前夕及農曆新年除夕：上午 10 時至下午 5 時

逢星期四（公眾假期除外）、農曆年初一及二休館

票務處於上午 10 時開放，休館前一小時停止售票

票價：

\$30, \$21#, \$15*

（星期一、二、五、六、日及公眾假期，票價已包括參觀常設展覽廳）

\$10, \$7#, \$5*（星期三，常設展覽廳免費開放）

\$5（全日制學生）

20 人或以上於同時段參觀的團體之標準票特惠價

* 適用於殘疾人士（及一名同行照料者）及 60 歲或以上高齡人士

博物館通行證持有人及由攜票成人陪同參觀的四歲以下小童免費參觀

星期三免費入場安排不適用於此展覽

學校團體免費旅遊巴接送服務

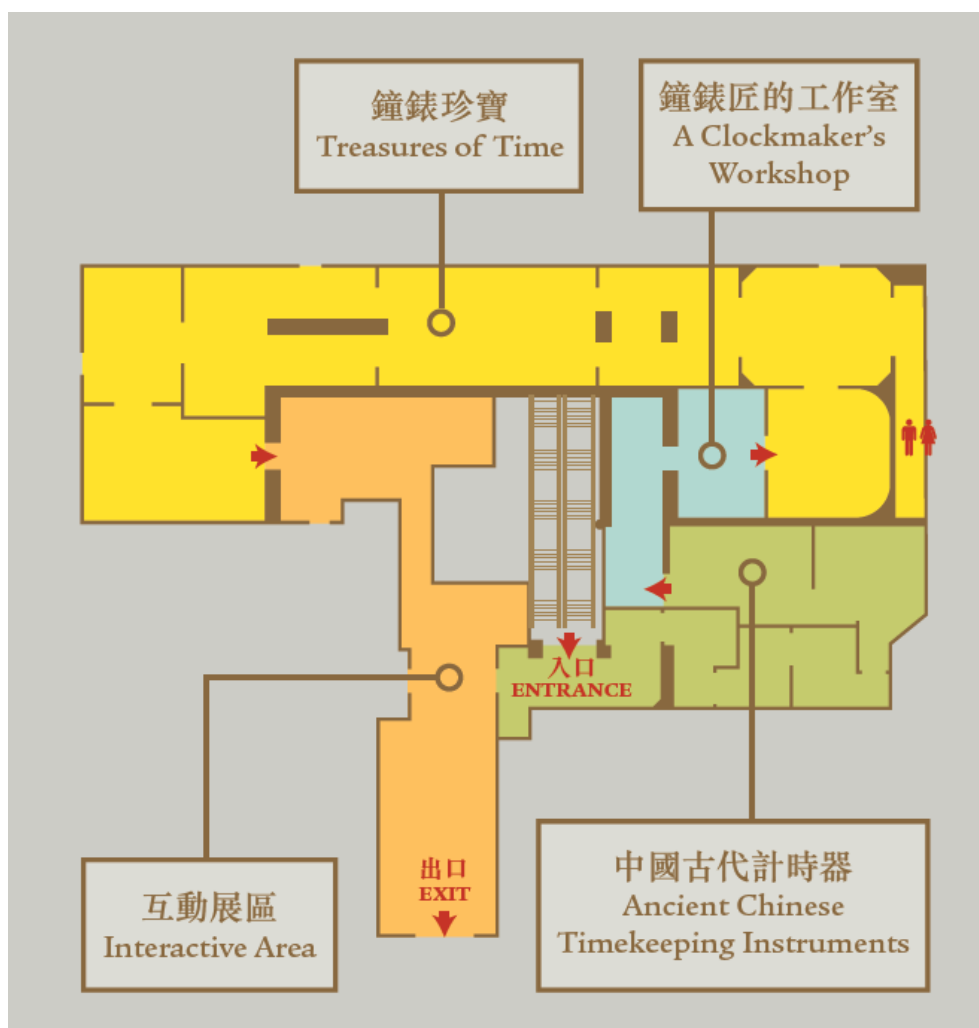
香港賽馬會交通費津貼計劃 - 「香港賽馬會呈獻系列：匠心獨運 — 鐘錶珍寶展」展覽旅遊巴接送服務

為鼓勵學校參觀「香港賽馬會呈獻系列：匠心獨運 — 鐘錶珍寶展」展覽，全港中、小學及幼稚園可申請免費旅遊巴接送服務，接送學生到香港科學館參觀。如欲申請是項服務，必須成功申請香港科學館「學校參觀」，免費旅遊巴接送服務申請表會隨「學校參觀入場信」一併寄出；免費旅遊巴接送服務名額有限，先到先得，額滿即止。

展廳平面圖

展覽共分為四個主要區域：

- (1) 中國古代計時器
- (2) 鐘錶匠的工作間
- (3) 鐘錶珍寶
- (4) 互動展區



展覽精華

中國古代計時器：展區共展出五件中國古代計時儀器，帶領觀眾穿梭時空，探索中國古人智慧的結晶。



銅壺滴漏

此銅壺滴漏屬於複壺類型，好處是可以維持壺內的水位，計時比單壺類型更準確。



水運儀象台

水運儀象台由宋代天文學家蘇頌和韓公廉設計，是一座以水為動力運轉的天文鐘，集合渾儀、渾象和報時系統於一身。

鐘錶匠的工作間：展區模擬十八世紀歐洲鐘錶匠的工作間，展出多款造鐘工具，讓觀眾欣賞鐘錶匠的精細工藝。要成為鐘錶大師並不是容易的事！



鐘面刻劃儀

這個儀器可準確定出鐘盤上小時刻度的位置。



一套八件的大銼刀

銼刀用途廣泛，通用於削圓和切割，以至修飾和打磨。

鐘錶珍寶：展出的 120 組造型華麗、機關巧妙的機械鐘錶，展現出中西方藝術和技術的交流。琳瑯滿目的珍寶來自英國、法國、瑞士、清宮造辦處和廣州，種類繁多，做工精細，必定讓觀眾嘖嘖稱奇。



銅鍍金象馱水法錶

象代表「吉祥」，寓意幸福和平，是西洋鐘錶常見的裝飾。



銅滾鐘

此鐘以自身重力作為動力來源，是一個沒有發條的機械鐘。

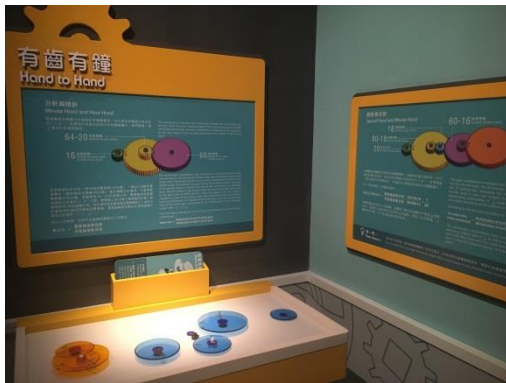


銀累絲嵌琺瑯鏡錶

這對鏡錶中西合璧，小錶是英國製作，其他部分由清宮造辦處製造。

所有鐘錶圖片由故宮博物院提供

互動展區：展區內有超過十組互動展品和多媒體項目，以輕鬆有趣的方法讓觀眾了解鐘錶及時間的奧妙。



有齒有鐘

時、分和秒針的轉動有
甚麼秘密？



一代鐘師

齊來動手製作機械鐘。



失時密室

在黑暗中，你對時間有甚麼感覺？

流動科學天地

流動科學天地有多個有趣的小實驗，透過親身參與和配合導賞員的悉心講解，讓觀眾對鐘錶內的科學原理能夠有更多的認識。其中的小實驗包括利用中國古代授時工具測量時間、組合不同的齒輪去模擬時鐘上指針的走動和透過單擺的簡諧運動瞭解計時原理等。

日期：2018 年 12 月 10 日起

時間：上午 11:00 – 下午 12:30 (星期一、二及五學校參觀時段) 及星期六或日下午 2:30 – 4:00

地點：地下專題展覽互動展區

參觀前準備

1. 與學生討論時間的歷史及其重要性，讓他們初步了解時間的概念。
2. 與學生討論在鐘錶發明之前，人們計時和報時的方法，並討論這些方法的科學原理和利弊。
3. 讓學生聯想鐘錶除了作計時和報時之用外其他的用途。

參觀後延伸活動

1. 與學生鞏固學習鐘錶運作的科學原理，並可製作簡單計時工具，如沙漏、水鐘或簡單機械鐘等，設計有「STEAM」元素的探究活動。
2. 以是次展覽展出的文物為例，讓學生思考科學與科技和文化交流的關係，並討論這種交流對科學與科技發展的影響。
3. 與學生討論時間流逝的體驗，讓他們思考時間的意義。

網上資源及參考

Exactly What is Time

<http://www.exactlywhatistime.com/>

Explain that Stuff! – Quartz Clocks and Watches

<https://www.explainthatstuff.com/quartzclockwatch.html>

History of Watch

<http://www.historyofwatch.com/>

香港天文台 — 時間與曆法

http://www.hko.gov.hk/gts/time/HKSTime_c.htm

US National Institute of Standards and Technology

<https://www.nist.gov/pml/time-and-frequency-division/popular-links/walk-through-time>

Introduction

Since ancient times, humans have paid great attention to seasonal changes and performed time measurements using astrology. In order to measure time more precisely, different types of chronographs were invented. After being introduced by European missionaries to China during the late Ming and early Qing dynasties, mechanical clocks proved to be the most reliable and convenient time keepers. These “new products” were designed with novel and ingenious features. They not only reported time accurately, but also comprised a host of other mechanical devices. When the mechanical clocks were wound up, decorative flowers, birds and animals would move back and forth while music played at the same time. The Qing emperors were very fond of these clocks. The palace collected a large number of timepieces and kept them as decorations and furnishings. Later, the Imperial Workshops of the Qing Court were established specifically for the production of timepieces. It first imitated the European style and then gradually developed its own Chinese styles and designs.

“The Hong Kong Jockey Club Series: Treasures of Time” exhibition merges science, history and art. Visitors will have an opportunity to appreciate a number of exquisite timepieces, learn more about time and the mechanisms of mechanical clocks from a scientific perspective, and gain a better understanding of the significance of cultural exchange and its historical meaning as well as technological achievements. The exhibition will display 120 magnificent clocks and watches from the collection of The Palace Museum. Some of the items in the collections were tributes from Britain, France and Switzerland, while others were manufactured by local craftsmen in the Workshops and in Guangzhou. Several British clocks, repaired just in recent years, will be displayed outside The Palace Museum for the first time. There will also be sections illustrating the workshops of craftsmen during the 18th century in Europe, with displays of different kinds of tools and equipment collected by the Science Museum, London, part of the Science Museum Group. Alongside these treasures, the exhibition will demonstrate the latest technology, animations, models and interactive exhibits to create a special ambience and to show the audience the principles of different time measuring tools, from ancient Chinese instruments and mechanical timepieces to updated atomic clocks. In addition to enjoying the invaluable collections at close range, experts from The Palace Museum have been invited to conduct live demonstrations of the operation of the clocks, thus enabling the audience to gain an insight into the passing of time and to learn to cherish it.

Jointly presented by the Leisure and Cultural Services Department and The Palace Museum

Jointly organised by the Hong Kong Science Museum, The Palace Museum and the Science Museum, London, part of the Science Museum Group

Solely sponsored by The Hong Kong Jockey Club Charities Trust

Supporting Organisation: China Science and Technology Museum

Information on Visits

Exhibition Period: 7.12.2018 – 10.4.2019

Venue: G/F Exhibition Hall, Hong Kong Science Museum

Opening Hours:

Mondays to Wednesdays, Fridays: 10am – 7pm

Saturdays, Sundays and public holidays: 10am – 9pm

Christmas Eve and Chinese New Year's Eve: 10:00am – 5:00pm

Closed on Thursdays (except Public Holidays), and the first two days of the Chinese New Year

Box Office opens at 10am and closes one hour before the Museum's closure

Admission Fee:

\$30, \$21 #, \$15*

(Mondays, Tuesdays, Fridays, Saturdays, Sundays and public holidays, fee including admission to the Permanent Exhibition Hall)

\$10, \$7 #, \$5* (Wednesdays, free admission to the Permanent Exhibition Hall)

\$5 (Full-time students)

Special rate of Standard Ticket for groups of 20 people or more per visit

* Applicable to people with disabilities (and one accompanying carer) and senior citizens aged 60 or above

Free admission for Museum Pass holders and children under 4 years old accompanied by an adult with ticket

No free admission on Wednesdays

Free Coach Services for Schools

The Hong Kong Jockey Club Transport Subsidy Scheme – “The Hong Kong Jockey Club Series: Treasures of Time” Exhibition Free Coach Services for Schools

To encourage visits to “The Hong Kong Jockey Club Series: Treasures of Time” Exhibition by school groups, free coach services will be provided to all secondary schools, primary schools and kindergartens during the exhibition period. Applicant must first apply for school visit to Hong Kong Science Museum. The successful applicant will receive a School Visit Admission Letter and an application form for free coach services. The quota for free coach services is limited and is on a first come, first served basis.

Floor Plan

The exhibition consists of four major areas:

- (1) Ancient Chinese Timekeeping Instruments
- (2) A Clockmaker's Workshop
- (3) Treasures of Time
- (4) Interactive Area



Exhibit Highlights

Ancient Chinese Timekeeping Instruments: Five pieces of ancient Chinese timekeeping instruments are displayed in this area. These instruments take visitors back to the old days and let them discover the wisdom of ancient Chinese.



Bronze Clepsydra

This clepsydra features a multi-stage style. The advantage is to maintain a constant water level and is more accurate than the single-vessel type.



The Water-driven Astronomical Clock Tower

Designed by Su Song and Han Gonglian in the Song dynasty, this water-driven astronomical clock combined the functions of an armillary sphere, a celestial globe and a time-reporting device.

A Clockmaker's Workshop: This area is set as a European clockmaker's workshop back in the 18th century. A selection of clockmaking tools is displayed to engage visitors' appreciation in the arts and techniques of clockmakers. Being a master in clockmaking is not an easy task!



Instrument for ruling clock dials

This instrument was used to position the hour marks on a clock dial at precise intervals.



Set of eight large files

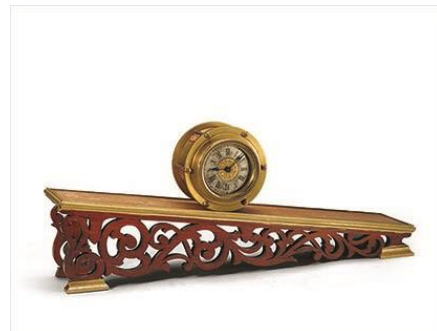
Files were used in a variety of ways, from rounding and cutting to finishing and smoothing.

Treasures of Time: The 120 magnificent and intricate mechanical clocks and watches displayed in this area present the artistic and technological exchanges between China and the West. The comprehensive collection comes from Britain, France, Switzerland, the Imperial Workshops of the Qing Court and Guangzhou. Visitors would be amazed by the diversity and intricacy of the timepieces.



Gilt bronze elephant carrying a watch with a water automaton

The elephant, representing “auspiciousness” as well as conveying happiness and peace, is a common decoration on western clocks.



Copper clock with an ornate sloping mount

This is a spring-free mechanical clock using its own weight as the power source.



Mirrors with inset watches and holders decorated with silver wire and cloisonné enamel

This pair of watches represents the integration of China and the West. The small inset watches are made in England while the rest are made by the Imperial Workshops.

All photos of clocks and watches are provided by The Palace Museum

Interactive Area: More than 10 interactive exhibits and multimedia programmes in this area would enhance visitors' understanding of the working principles of timepieces and the secret of time in an interesting way.



Hand to Hand

What is the secret behind
the hour, minute and
second hands?



The Master of Clock

Mechanical clock DIY.



Lost in Time

What do you feel about time in the dark?

Science Cart

Science cart showcases a number of interesting experiments which invites visitors' hands-on participation. With the assistance of docents in providing explanations, the public will learn more about the science principles of the timepieces. Some of the experiments include the use of ancient Chinese timekeeping instruments to tell time, the combination of different gears to demonstrate the movement of pointers on clocks, the simple harmonic motion of a simple pendulum to explain the principle of time measurement.

Date: From 10.12.2018 onwards

Time: 11:00am – 12:30pm (School Visit sessions on Mondays, Tuesdays and Fridays) and 2:30pm – 4:00pm on Saturdays or Sundays

Venue: G/F, Interactive Area of Special Exhibition

Pre-visit Preparation

1. Discuss with students the history and importance of time and let them build up a preliminary concept about time.
2. Discuss with students how people kept and told time before the invention of clocks and watches, and discuss the science principles and pros and cons of these methods.
3. Let students brainstorm the uses of clocks and watches other than keeping and telling time.

Post-visit Extension Activities

1. Reinforce students' knowledge on the scientific principles of how clocks and watches work by building simple timekeeping instruments, for example, hourglass, clepsydra or simple mechanical clock in an experiment-based lesson with elements of "STEAM".
2. Let students think about the relationship of science and technology with cultural exchange taking the exhibits of this exhibition as an example. Discuss how cultural exchange influences the development of science and technology.
3. Discuss with students the experience of the passing of time and let them reflect on the meaning of time.

Online Resources and References

Exactly What is Time

<http://www.exactlywhatistime.com/>

Explain that Stuff! – Quartz Clocks and Watches

<https://www.explainthatstuff.com/quartzclockwatch.html>

History of Watch

<http://www.historyofwatch.com/>

Hong Kong Observatory – Time and Calendar

<http://www.hko.gov.hk/gts/time/HKSTime.htm>

US National Institute of Standards and Technology

<https://www.nist.gov/pml/time-and-frequency-division/popular-links/walk-through-time>