出國報告（出國類別：考察)

北美中西部兒童博物館考察計畫

服務機關： 國家兒童未來館籌備處

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派赴國家/地區：美國／芝加哥、印第安納波里斯、波士頓

出國期間：**113** 年 **7** 月 **18** 日至 **7** 月 **27** 日

報告日期：**113** 年 **9** 月 **25** 日

摘要

國家兒童未來館籌備處 113 年度出國計畫時間為 113 年 7 月 18 日至 27 日，主要目的為拜會美國中西部指標性兒童博物館－芝加哥兒童博物館 Chicago Children's Museum、印第安納波里斯兒童博物館 Children's Museum of Indianapolis 及波士頓兒童博物館 Boston Children's Museum；考察或拜會美國芝加哥地區其他指標性館所－菲爾德自然史博物館 Field Museum of Natural History 及科學與工業博物館 The Griffin Museum of Science and Industry，透過考察館所空間量體規劃、展示主題、內容、手法、營運等，供國家兒童未來館後續規劃設計參考，並逐步建構國際交流平台。本報告之具體建議如下：

（一） 建議本館展示結合台灣的在地文化特色

（二） 建議本館展示須將兒童普世性、感興趣的主題及遊戲方式作為重點考量

（三） 建議本館的規劃，應將如何營造「好玩」的遊戲氛圍及環境視為首要目標

（四） 建議展示發展的過程，應同時進行相關觀眾調查及研究，並將觀眾的需求及喜好納入展示之中

（五） 建議本館未來的組織人力編制，應側重教育人員的編制，並建立專業社群連結

（六） 建議本館應論將教育理論納入本館論述核心，並審慎評估是否進行典藏

（七） 建議本館空間預留沉浸式、多媒體策展的場域

（八） 建議本館硬體空間規劃必須視兒童博物館之特性進行設計，並保留部分彈性使用空間

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壹、前言

一、緣由目的

為打造首座國家級專屬兒童的館所，行政院於 2021 年 8 月核定「國家兒童未來館興建計畫」（以下稱本計畫），以提供兒童多元發展、創新學習體驗、親子互動、友善平權、參與共創的場域為目標，同時培養孩童面對未來的素養，成為改變社會的驅動力。2022 年 4 月國家兒童未來館籌備處（以下稱本處）正式設立，設立目的為推動「國家兒童未來館興建計畫」。

「國家兒童未來館」（下稱本館）係參考「兒童博物館」類型之博物館所，根據美國兒童博物館協會（ACM, Association of Children's Museums）在 2019 年的年會（InterActivity 2019: FearLESS）上定義：「兒童博物館是非營利的教育、文化機構，致力於滿足孩子們的好奇心及需求，透過豐富的展覽和課程，讓孩子們在探索中學習，培養創造力。」[1]有此可知，與傳統博物館以物件（典藏）為核心衍生的各種蒐藏、研究與展示之理念截然不同，「兒童博物館」係以觀眾為中心，以教育為目而成立的博物館，這種完全以觀眾為出發點的理念在博物館界非常罕見[2]，因此如何打造一個將「兒童」作為核心，並真正能夠觸發兒童學習興趣的館所，成為本計畫的重要議題。

世界第一座兒童博物館位於紐約布魯克林，設立於 1899 年，美國是目前全世界兒童博物館數量最多、事業最繁盛的國家。為促使本計畫推動、發展的過程趨於周延，本處計畫透過訪查、拜會美國指標性兒童博物館，學習並借鏡其館所空間規劃、展示內容、展示手法等，俾利本計畫規劃設計之參考，同時建構國際館際交流平台，期本館成為全世界或亞洲首屈一指的兒童館。爰此，本(113) 年度「北美中西部兒童博物館考察計畫」考察重點兒童館所及目的摘要如下：

一、波士頓兒童博物館 Boston Children's Museum：成立於 1913 年，為世界第二座兒童博物館，不僅具有深厚的發展歷史，同時在 60 年代最早帶領「兒童博物館」逐漸從傳統物件中心轉以「觀眾」為核心，在兒童博物館的教育思想上具有典範性的地位。

[1] https://childrensmuseums.org/wp-content/uploads/2021/11/ACMFourDimensionsofChildrensMuseums.pdf#:~:text=A%20children%E2%80%99s%20museum%20is%20defined%20as%20a%20nonprofit,and%20programs%20that%20stimulate%20curiosity%20and%20motivate%20learning.

[2] 陳涵郁. (2011). 兒童博物館的百年發展. *Journal of Museum & Culture*, *1*, 35-60.

二、印第安納波里斯兒童博物館 Children's Museum of Indianapolis：成立於 1925 年，為世界上最大的兒童博物館，該館擁有超過 13 萬件的館藏，典藏面向包含自然科學及人文藝術等各式面向，同時該館亦以其豐富多元的展示主題聞名。

三、芝加哥兒童博物館 Chicago Children's Museum：成立於 1982 年，與前列的兩館所相比，屬較新的兒童博物館（芝加哥兒童博物館），該館位於芝加哥的觀光及商業重心， 交織出其獨特的城市多元風貌，為全美十大受歡迎的兒童博物館。

本次考察，於出發前預先提供各館所窗口訪問綱要，以下摘要訪綱討論重點：

1. 在兒童博物館中，那些元素是最為重要或經典的呢（包括展示主題、設施、教育活動等）？
2. 在兒童博物館的展覽發展及規劃的過程中，如何確保展覽的有效性，以及如何將觀眾的聲音納入展覽之中？
3. 兒童博物館如何設定自己的目標觀眾？面對兒童博物館中展示的分齡及混齡挑戰，您有什麼樣的看法？
4. 因應兒童博物館的特性，在組織及人力的分配上，請就您的經驗與我們分享？
5. 關於兒童博物館如何經營博物館關係，或是如何建立專業社群，請就您的經驗與我們分享？

二、考察行程

本次考察時間為 113 年 7 月 18 日（四）至 27 日（六），實際落地行程為 7 月 19 日（五）至 26 日（五），計 8 天。

日期	地點	內容
7 月 18 日	前往美國	自台北至美國
7 月 19 日	芝加哥	【拜會芝加哥兒童博物館】 ● 交流訪談對象： ➢ Kim Koin Art & Thinkering Studio 主任 (Director of Art and Tinkering Studios) ➢ Alexandra Pafilis 學前兒童發展主任暨 DEAI 倡議策略主管 (Director of Early Childhood & Strategy Lead for DEAI Initiatives)

		● 流程： ➢ 10:00-12:30 館方展場導覽介紹 ➢ 13:00-15:00 交流訪問 ➢ 15:00-16:00 自由考察參觀
7 月 20 日	芝加哥	【拜會艾菲爾德自然史博物館】 ● 交流訪談對象： ➢ Eduarda Briseno , 甄素蓮教育推廣中心特殊項目資深經理 (Senior Manager of Special Programs in the Sue Ling Gin Center for Education and Public Programs) ➢ Emmanuel Meenattoor, Grainger Science Hub 專員 (Grainger Science Hub Coordinator) ➢ Elaine Kelley, 學前教育部門專員 (Early Learning Experiences Coordinator) ● 流程： ➢ 10:00-12:00 考察參觀 ➢ 13:00-14:00 Grainger Science Hub 館方導覽暨交流考察 ➢ 14:00-16:00 Crown Family PlayLab 館方導覽暨交流考察
7 月 21 日	芝加哥	【芝加哥科學工業博物館考察】 【千禧公園考察】
7 月 22 日	通勤	自芝加哥至印第安納波里斯
7 月 23 日	印第安納波里斯	【拜會印第安納波里斯兒童博博物館】 ● 交流訪談對象： ➢ Monica Ramsey 經驗發展與家庭學習部門副執行長 (Vice President, Experience Development & Family Learning) ➢ Susan Foutz 研究與評估部門主任 (Director of Research and Evaluation)

		➢ Elyse Handel 學前兒童教育部門經理 (Early Childhood Education Manager) ➢ Christian G. Carron 典藏部門主任 (Director of Collection) ● 流程： ➢ 10:00-11:00 館方展場導覽介紹 ➢ 11:00-12:30 交流訪問 ➢ 13:30-15:00 典藏庫房參觀導覽 ➢ 15:00-17:00 考察參觀
7 月 24 日	通勤	自印第安納波里斯至波士頓 【波士頓公園考察】
7 月 25 日	波士頓	【拜會波士頓兒童博物館】 ● 交流訪談對象 ➢ Melissa Higgins 計畫與展覽部門副執行長 (Vice President of Programs and Exhibits) ➢ Li, Lok-Wah 研究與評估經理 (Research and Evaluation Manager ● 流程： ➢ 12:00-14:00 自由考察參觀 ➢ 14:00-15:00 兒童戲劇欣賞考察 ➢ 15:00-17:00 交流訪問
7 月 26 日	返台-台北	自波士頓至台北
7 月 27 日	台北	

貳、考察紀錄及心得

一、兒童博物館考察

(一) 芝加哥兒童博物館 Chicago Children's Museum 與海軍碼頭 Navy Pier

芝加哥兒童博物館 Chicago Children's Museum（以下簡稱 CCM）位於美國第五大城－芝加哥市中心著名的觀光景點海軍碼頭（Navy Pier）建築群商場中。海軍碼頭佔地超過 50 英畝，裡面包含商場、餐廳、飛行劇院、劇場、遊樂設施（如：摩天輪、旋轉木馬、飛天鞦韆等）、公園（包括 Polk Bros Park 波爾克兄弟公園）、花園等休憩設施，是美國中西部最大、最著名的景點之一，每年吸引近千萬的光觀人潮[3]。得利於這樣特殊的區域位置，除了芝加哥及伊利諾伊州的觀眾外，CCM 也吸引了許多外來的家庭觀光客前來參觀，由於海軍碼頭園區的服務機能規劃完善，來到 CCM 的家庭觀眾得到完善的商業服務及休閒娛樂體驗。

本館規劃之營運內容包含親子電影院、飛行劇院、劇場、親子餐廳、輕食咖啡廳、博物館商店等，不僅內容多元且商業設施比例較目前傳統博物館高。此外除本館建築本體外，戶外空間規劃銜接萬坪公園，設有綠地、廣場及兒童遊戲場，因此無論設施、服務內容、區域地理位置，CCM 及海軍碼頭都具有高度的參考價值。

透過本次考察得以借鏡於 CCM 及海軍碼頭的成功模式，將結合博物館特質與商業服務設施，提供更完善的休憩體驗及服務內容，藉此吸引更多的遊客及觀眾，讓本館成為受歡迎的家庭旅遊、互動共學據點。

[3]Navy Pier 官網：
https://navypier.org/?gad_source=1&gclid=Cj0KCQjw9Km3BhDjARIsAGUb4nzEwVrrSRc2gxKVFak6bUClBqTqtoktsfT0AMQ5kXFregcYHObzxb4aAt3nEALw_wcB



CCM 成立於 1982 年，使命是希望「透過創造一個結合遊戲和學習相結合的社區，改善兒童生活」，館內提供多元的主題與設施，包含藝術創造、生活技能、動手做工作坊等， 讓兒童遊戲、學習的同時也能激發想像力和創造力。CCM 長期投注於兒童博物館協會（ACM），CCM 的現任館長過去也曾是 ACM 的主席，並在 2024 年經過網路票選進入全美最受歡迎的 10 大兒童博物館[4]。透過本次的訪查及交流，借鏡 CCM 館內展示內容及展示手法，了解每個展示背後的目標、內涵及教學意義，博物館共融的做法及策略，及博物館的地方社群經營等。

[4]根據 10 best USA Today 調查，https://10best.usatoday.com/awards/travel/best-childrens-museum-2024/

本次考察流程分為四部分，第一部分：館方人員展覽及空間導覽；第二部分：交流訪談；第三部分：參觀考察展示內容及手法。

【考察重點紀錄】

A. FACES 歡迎牆及藝術裝置：在進入展區前設置了歡迎牆，歡迎牆上有各國的語言表示歡迎，歡迎牆的藝術設置，為當地的社區兒童的共同創作，透過孩子們的自畫像打造歡迎的整體視覺裝置，營造共融、參與式的歡快友善氛圍。而售票亭同樣也利用芝加哥地區不同社群（community）創作的藝術裝置捕夢網，進行吊頂裝飾。這些藝術共創的佈置，回應了館方的使命「透過創造一個結合遊戲和學習相結合的社區，改善兒童生活」。

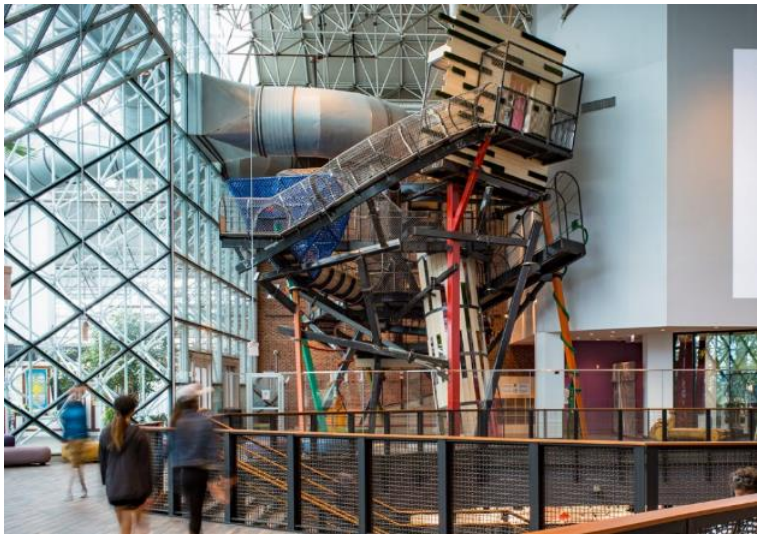
B. 教育及共融性的博物館巧思：博物館的階梯上有英語及西語的數字（因為芝加哥的西語人口眾多，因此館內的多數標誌、展板皆為雙語），館方表示這個引以為傲的設計讓孩童能夠一邊數數一邊上樓，讓兒童及家庭在爬樓梯時進行活動並慢下腳步，有助於爬樓梯的趣味性，尤其對學校觀眾還有助於增進爬樓梯的秩序性，由此可見館方在館內空間安排上的巧思與用心。

C. 博物館宣言版：在入展廳處的寄物箱及嬰兒車停放區旁，設有大面的博物館（願景使命）宣言版，在觀眾進入展區前，向觀眾揭示館方的定位。宣言版內容向觀眾們預告接下來的體驗、冒險的注意事項，透過別具趣味性敘寫，向觀眾傳達、提醒什麼是接下來的博物館經驗中最重要、最值得注意的事情，例如：「相信遊戲的力量，並從中學習、創造和成長」，「鼓勵兒童在館中做自己，並成為任何自己想成為的：激發創意及想像力」、「在體驗中可能全身都弄濕或是被泥巴弄髒，但這就是童年：鼓勵兒童挑戰及冒險」、「創造、建造再拆掉」、「成為藝術家，一起創造東西：強調動手做的體驗」、「有困難的時候可以向工作人員尋求幫助」、「大人們也歡迎一起玩，但如果過累，就適時的坐下來休息也無訪」等，透過這樣的方式讓觀眾們對接下來的博物館冒險有所期待，同時也提供家庭觀眾（尤其照顧者）更多的輔助資訊，讓他們能以更完善的心態與兒童們一起學習。

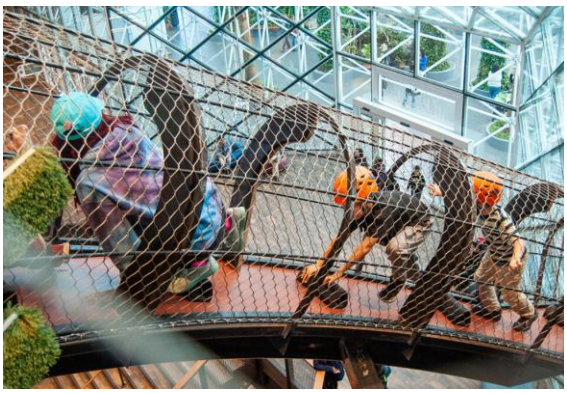
D. 特展－*Circusville*（馬戲團維爾）：*Circusville* 是一個巡迴展，展示分成兩個區域，第一區設計成馬戲團後場－上台前的練習區，兒童可以在此進行各種大幅的肢體活動、角色扮演；第二區則為馬戲團前場－舞台區及觀眾席，兒童可以在這邊玩各種遊戲，想像自己成為馬戲表演者進行表演，或是表演場內販售食物的小販。

E. 常設展－*Cloud Buster*（攀爬架）：是 CCM 於疫情期間，在 2019 年更新的最新展示，邀請藝術家 Kevin Winters 設計的攀爬架，旨在探索樓層、攀登、探索意想不到的空間，是為較大的兒童（8-10 歲）所設計的（規定為 5 歲以上可以使用），由於該攀爬架「開放式的遊戲結構（open-ended play and structure）」，

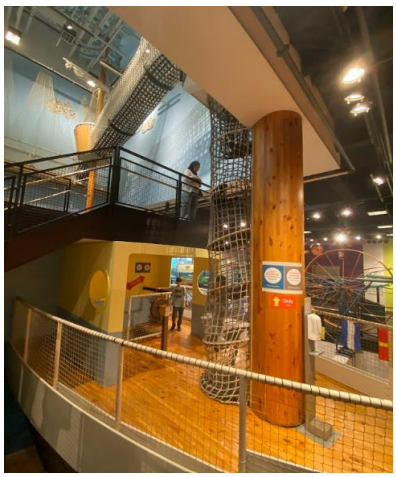
攀爬架的高度、路徑、樓層、坡度設計的十分具有挑戰性，因此小孩及大人都能夠參與。館方向我們透露，這是館內最受歡迎的展覽之一，甚至會有一些青少年為此特地來 CCM 參觀，只為了玩 *Cloud Buster*。



進行攀爬時，兒童必須配戴安全帽，館方表示由於該攀爬架的建造設計上具有一定的危險性（如鋼鐵材質、尖角等），且配戴安全帽的另一個作用，那就是產生心理暗示，幫助兒童體認到「自己即將展開一場挑戰及冒險，並注意安全！」另外，整個攀爬架出入口簡明，因此館方人員配置安排得以精簡，僅一名在出入口管制並告知相關規則，一名在攀爬架中進行指引、協助及確保安全，共計 2 名；另外，攀爬架的設計強調通透性、可視性，所以即便本設施屬橫跨兩樓層的大型量體，陪伴者也能坐在一樓的休息區觀察到自己的孩子，這些設計兼顧到館方的管理及安全性，館方及家長不用害怕自己的孩子會不見。



F. 常設展－*Kovler Family Climbing Schooner*（攀爬架－縱帆船）：CCM 為了滿足不同的年齡層，Schooner 是另一個為了年齡層較小的兒童所設置的攀爬架，外型的設計結合海軍馬頭可以看見的縱帆船，它與 Cloud Buster 不同，在整體路徑、挑戰的設計上更為容易，建造材質選用更為安全的實木及繩編織網，整體更為安全，更適合年齡層較小的孩童進行身體動作探索。



G. 常設展－*Pritzker Playspace*（幼兒空間）：專為嬰兒和學齡前兒童設計的空間（設定年齡為 0-5 歲），旨在提供幼兒與家庭觀眾一個較為安靜、親密的互動空間，展示素材必須儘量安全及有趣的，展示空間更加考量陪同者／照顧者的需求（也就是成人的需求），提供足夠的座位、地毯和墊子，空間的設計強調零散部件（loose parts）[5]探索及感官探索。這裡的展示一季會更換一次主題，主題由館方策劃，並最大程度的利用館方既有的素材來進行布置。

[5]請參考學習理論 Theory of Loose Parts、Loose Parts Play。

空間的使用採預約制，一個時段為 45 分鐘，觀眾僅需到現場抽取預約票就可以完成預約。因應空間中孩童會在裡面爬行或躺在地板上，因此必須脫鞋，館方在管理上必須格外注重清潔和消毒。






H. 工作坊空間－*Art Studio*：與在芝加哥出生長大的黑人藝術家 Hebru Brantley 合作打造的工作坊空間，將空間打造的具有趣味性、創意性，藉以激發兒童的想像力及創造力。

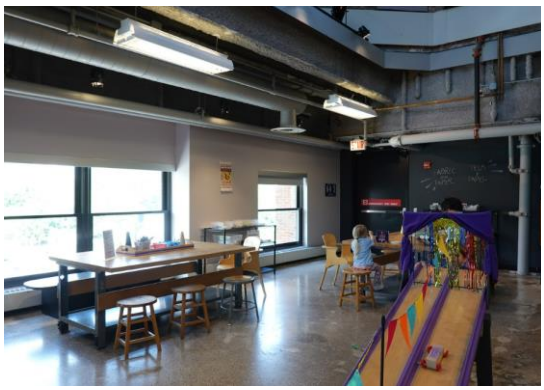
Art Studio 的體驗採預約制，每天約有 4-6 個場次，僅需來館當天到工作坊門口抽取預約卡即可體驗活動，每場次約 45 分鐘，活動的進行包括由教育人員進行 5-7 分鐘的活動引導，接著讓參與者進行 20-30 分鐘的創作。以當天訪查的活動

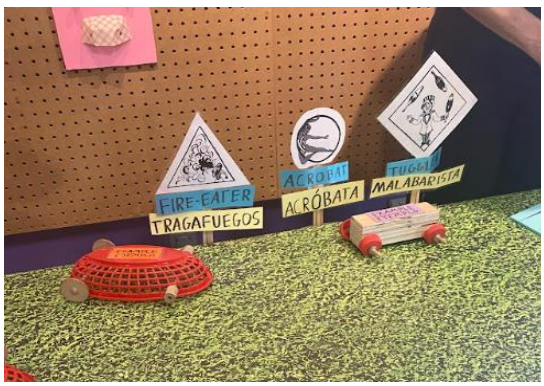
「Map（地圖）」為例，教育人員會先透過繪本故事，或日常生活中的經驗引導兒童思考什麼是地圖？地圖構成的要件是什麼？然後再讓孩童進行自己的地圖創作。

Art Studio 的活動時常與當地的藝術家合作，將藝術家帶進博物館，與館員一起進行教案、活動的開發。CCM 也在館內保留部分的展示空間，讓兒童可以將其創作的作品放在館中展示，當兒童把作品留在博物館，他們會與博物館產生更深的連結與認同，進而成為博物館的一份子。

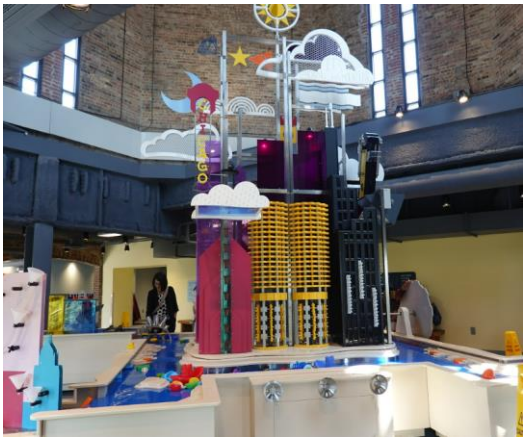



I. 工作坊空間－*Tinkering*：CCM 中設有科學類博物館中常見的 Tinkering 工作坊，CCM 將其定位為 STEAM 實驗室，旨在鼓勵兒童「製作它，測試它，修復它」，透過動手創造的過程，學習、思考、激發想像力。值得一提的是，與一些科學類博物館中所設的 Tinkering 較不一樣的一點，CCM 為了讓年齡層較小的孩子加強連結性，（館方與我們分享）根據國家科學基金會 National Science Foundation 的研究顯示，加入故事性有助於兒童對工程的學習（engineering learning），因此 CCM 在 *Tinkering* 活動中加入更多的故事性，盡可能地將活動與館中的展覽做結合。以當天考察的活動為例，館方就將特展 *Circusville* 的馬戲團故事脈絡，與當天的活動「自己組裝一台車」，用故事包裝發展為「動手建造一台馬戲團車」教案活動。





J. 常設展－*Water City*（水之城）：這個展示將芝加哥的城市特色包括摩天大樓及芝加哥河、芝加哥市旗等，與玩水這個主題結合，是 CCM 最新且最受歡迎的展覽之一，整個展件橫跨兩個樓層，且因應兒童玩水的需求，設置簡易更衣及烘乾空間。




NAVY PIER
CHICAGO CHILDREN'S MUSEUM


EXIT

K. 常設展- *Skyline*（天際線）：同樣在芝加哥摩天大樓的城市特色脈絡下，兒童可以在這個展區動手做，建造自己的摩天大樓。




【訪談重點紀錄】

- 訪談對象
  - Kim Koin Art & Thinkering Studio 主任 (Director of Art and Tinkering Studios)
  - Alexandra Pafilis 學前兒童發展主任暨 DEAI 倡議策略主管 (Director of Early Childhood & Strategy Lead for DEAI Initiatives)


- 訪談重點整理

1. 博物館組織團隊：CCM 的室內展示空間約 57,000 平方英呎 （5,300 m^2），館內人員（含編制內及編制外）約為 100 多人，前台人員大約為 40-50 人，目前博物館並沒有使用志工，編制表如附件 1.1.，館方的人力配置以教育人員的編制為最大。
2. 換展的頻率及常設展的效期：CCM 的特展空間大概每 3 個月到半年會換一次展，可能會引進別的館所或機構所製作的展覽，也可能是自策特展，如果是自策特展至少需要一年的時間來發想、設計和佈置展覽。常設展覽通常會持續五年至十年不等，一個十年的常設展在 CCM 算是非常舊的，館方一般會避免一個常設展超過十年。
3. 有關兒童博物館展示的核心元素或主題：
    a. 兒童博物館的展示主題，存在著一些永恆經典、歷久不衰的主題，以美國的文化脈絡來說，恐龍、挖化石、兒童城（*Kids Town*）、露營（*Threehous*）以及玩水展覽（*Water City*）都是經典主題。
    b. 以兒童博物館最經典、受歡迎的模擬情境展（露營、兒童城）為例，展覽的主要目的是讓孩子模擬自己與家人的日常經驗，孩子們在自己熟悉的情境中，會更加喜歡並投入遊戲，像是洗車、搭車、露營等等，從情境的模擬幫助孩子社交、情緒、語言發展，及未來進入社會時所需要的團隊合作能力，當然其他展覽也都有相似的目標。
    c. 展覽設計中，孩子們童年時「普遍性追求（universal pursuits）」感興趣的事情和遊戲方式是值得注意的，幾點列舉：*Kids Town* 兒童城的角色扮演遊戲；*Water City* 水之城的玩水；孩子對滾動的東西的偏好，像是球、軌道或車；孩子們喜歡動手做、堆疊、建造的遊戲；年齡較小的孩子喜歡不斷重複的動作，像是把東西從一端帶到另一端的遊戲等。兒童發展上，可以觀察到這些遊戲方式具有普世性，與國家種族無涉，因此在展覽中創造這樣的沉浸式的（遊戲）環境結構（ structure of the immersive environment），目的是讓孩子進入環境中不需要指示，便能自主了解情境並開始遊戲、學習。
    d. 在設計上必須注意「玩」的多樣性及多元性，可以自己玩、一起玩或是冒險的玩。

e. CCM 的空間有一個特性，就是在結構化的環境中創造非結構化的遊戲體驗，以不同的主題創造沉浸式的環境，觀眾可以在其中有非常多元的方式進行不同的遊戲。（說明：在博物館內，許多制式化的硬體設施，其遊玩方式不是制式的，透過主題式的沉浸式空間，創造多種互動方式，而不限於單一主題和單一遊戲方式，這有助於創造沉浸式體驗時，觀眾腦內能自製思路和創造屬於自己主題。）

4. 關於兒童博物館的目標觀眾及年齡界定：

   a. CCM 的主要服務對象設定在 10 歲以下，因為美國 10 歲以上的兒童會進入青少年階段，變得更為獨立，較不依賴照顧者，可以更獨立的進行博物館參觀、探索，這與美國學制有關（11-14 歲為中學、 15-18 歲為高中），青少年的觀眾所需要的內容與 10 歲以下的兒童非常的不一樣，因此 CCM 的對象設定在 10 歲以下。

   b. CCM 的展示內容聚焦在 0-5 歲，根據行銷團隊調查，這是 CCM 最大宗的客群，從前會落在 7 歲以下，但是隨著時代現在年齡往下降到 5-6 歲，而 5 歲以下的展示、活動內容，也是目前 CCM 團隊最能掌握的。

   c. CCM 所有的展示都可以感受到它適合的年齡，但館方並不會規定只適合那些年齡段，CCM 只會提供建議。混齡的設計對家庭觀眾較為友善，同時 CCM 相信混齡的設計能創造出與學校（分齡）不同的學習及遊戲效果。

   d. 目前 CCM 確實沒有經營青少年的服務內容，但是有一些年齡較大的青少年會因為學校課程的需要（例如心理學、教育學）來到 CCM 進行課業上的研究學習，尤其是 *Art Studio* 及 *Tinkering* 的空間。

   e. 有些其他地方的兒童博物館提供青少年的服務，像是匹茲堡兒童博物館就有專門提供青少年租借的空間叫 Museum Lab。

5. 兒童博物館的工作人員，必須具備支持、幫助並鼓勵小孩的能力， 所以館內的工作人員（至少教育人員及前台工作人員）都要具備專業性，具有相關的教育背景或是接受訓練，能夠了解兒童心理，即使他們已有相關的背景（如教育），館方仍需為工作人員做相關的訓練，加強館員對兒童發展的了解，以及每個空間館方預期達到的目標。

6. 兒童博物館有其多元的樣貌性，每個兒童博物館都有其專注的目標，舉例來說 Rochester National Museum of Play 專注在玩具的收藏，而 CCM 則專注「玩」與學習的連結，透過訓練或是訊息的提供，CCM 盡可能地將更多的學術／教學目標做連結（包括學校的教學規範 Standard）。

7. 其他有關硬體及空間的相關建議：

   a. 在每個展覽空間中擁有儲物倉儲空間比集中一個大型中央儲藏空間更為實用，特別是在兒童博物館需要經常性的替換展品及鬆散物件（loose part）。

   b. 在工作坊及兒童作品的展示空間規劃上，一定要盡可能地保持彈性，能夠隨著教案及活動的不同，展示作品型態的不同，靈活使用的空間。

   c. 有關停車場的建議，由於 CCM 的特殊地理位置，目前館方並沒有屬於自己的停車場，海軍碼頭的停車場收費非常高，導致館方無法策劃活動時間較長的活動如夏令營等，因此建議館所在前期規劃時務必將停車需求納入考量。

(二) 印第安納波里斯兒童博物館 The Children's Museum of Indianapolis

印第安納波里斯兒童博物館 The Children's Museum of Indianapolis（以下簡稱 CMI）成立於 1925 年，是目前全球規模最大的兒童博物館，面積為 472,900 平方英呎 (43,933.85 m^2) 。藉由實體物件、沉浸式空間及現場展演的展示模式，為孩童和家庭提供科學、藝術、人文教育等多元學科知識，並兼具休閒娛樂性質的博物館體驗。CMI 強調博物館品牌的價值建立，也積極和學校教育、教師培育機構合作發展更完整的兒童教育方針。

CMI 擁有超過 13 萬件的收藏物件，涵蓋來自世界各地的藝術人文、自然史、當代趨勢的物件類別，如玩具、 漫畫、兒童畫作、昆蟲標本、恐龍骨頭化石等。CMI 致力於創造一個環境，讓大人和小孩都可以從事一些活動，一起學習，因此不像部分兒童博物館僅強調以兒童為中心， CMI 在展覽設計上，時常在思考的是，如何讓家庭一起合作、共同玩耍，這是他們的核心理念。

本次考察流程分為四部分，第一部分：副執行長恐龍展導覽介紹；第二部分：與館方進行訪談交流，了解館方定位與營運方針，第三部分：下午由典藏部主任導覽參觀典藏庫房，第四部分：參觀考察全館展示內容。

【考察重點紀錄】

A. 常設展－*Dinosphere*®（恐龍展）：CMI 擁有 99 年的歷史，而恐龍展已經有超過 50 年的歷史，是 CMI 最具代表性也是最受歡迎的展覽，展覽中展示了 CMI 收藏的恐龍及其相關化石，透過展覽帶兒童認識恐龍，以及學習化石及採集化石的相關知識。展覽內設有劇場式展示空間，透過投影及聲光的效果，教育人員會在現場以戲劇的方式進行演出，增進兒童的帶入感。

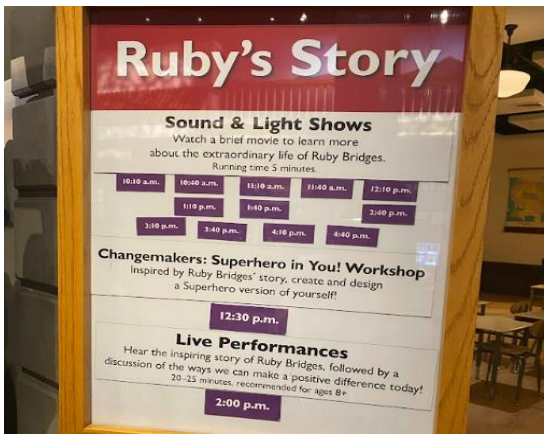
CMI 有正式編制的古生物學家，這讓 CMI 與眾（兒童博物館）不同，每年他們會固定進行實地野外考察，館內大部分的化石都是他們採集回來的。展覽內設有研究人員工作區，觀眾可以實境觀摩古生物學家的日常研究工作，也會定時有教育人員進行現場解說活動。





B. 常設展－*The Power of Children: Making a Difference*®（兒童的力量）：展覽透過四位 20 世紀知名的人物－Anne Frank（安妮·法蘭克－猶太裔日記作家）、Ruby Bridges（露比·布里奇斯－美國民權運動家）、Ryan White（瑞安·韋恩－抗愛滋

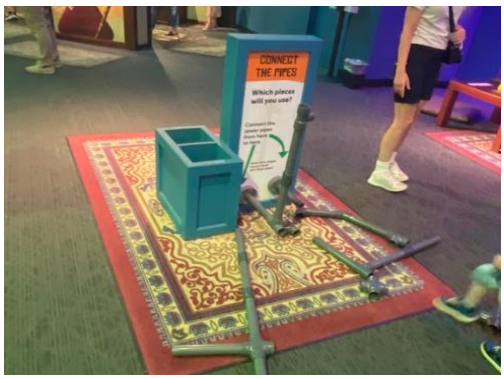
病勇士）、Malala Yousafzai（馬拉拉·尤沙夫賽－女權活動家、諾貝爾和平獎得主）第一人稱兒童視角說出自己的生命故事，引發觀眾對重要議題的省思，同時啟發兒童「每個孩子都有力量可以改變所處的世界及社會」。展覽手法大量仰賴劇場式策展，直接將展示空間以四個劇場空間作設置，輔以投影、燈光、聲音等效果，還原四位主角的某段生命故事場景，並以第一人稱式的影片講述故事；同時也會在固定時段，在展覽場景中進行真人實境的演出，讓觀眾能夠更直接地融入這些生命故事。



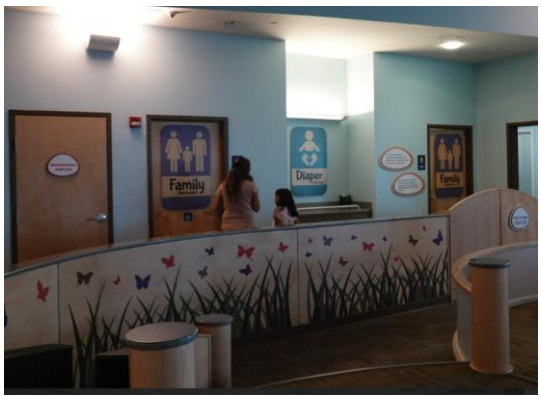
C. 合作性半常設展－*Take Me There®: Greece*（帶我去希臘）（已結束）：這個展區大概每三年會換一次展覽，展覽內容會以介紹一個國家為主題，在「帶我去希臘」的前一檔展覽是「帶我去中國」，下一個展覽為「帶我去祕魯」。展覽的形式與典型的兒童城及文化村類似，展覽以沉浸式展覽模擬一座「希臘城」，讓觀眾彷彿真實地來到希臘的一個社區，進入希臘人當地的商店、市場、漁船、廚房、家屋，體驗當地的生活情境，進而透過展示學習異國的文化、風俗及藝術等，策展的方式會依不同的展示主題國家與該國的組織進行合作策展。

D. 自策 IP 特展－*Teenage Mutant Ninja Turtles: Secrets of the Sewer*（忍者龜：下水道的秘密）：CMI 定期與美過各大知名 IP 合作，透過館內研究及教育團隊，將各大知名 IP 轉換為好玩又具教育意義的展覽，曾經推出 *Dora and Diego—Let's Explore!*（愛探險的 Dora）、*Emotions at Play with Pixar's Inside Out*（迪士尼腦筋急轉彎）、*Minecraft: The Exhibition*（知名電玩遊戲）等各大 IP 特展。而本次考察適逢「忍者龜」特展，這個展覽將忍者龜的故事情節，轉化為各種遊戲，旨在強調遊戲學習及如何透過溝通、互相合作達成任務。

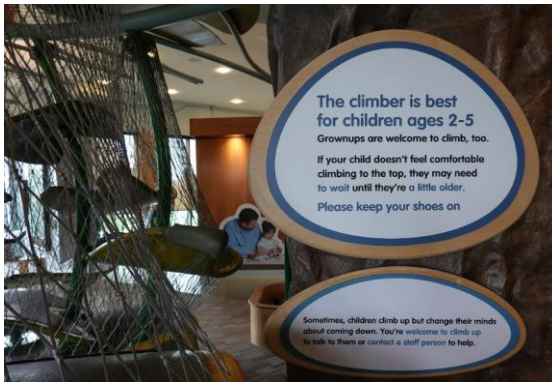


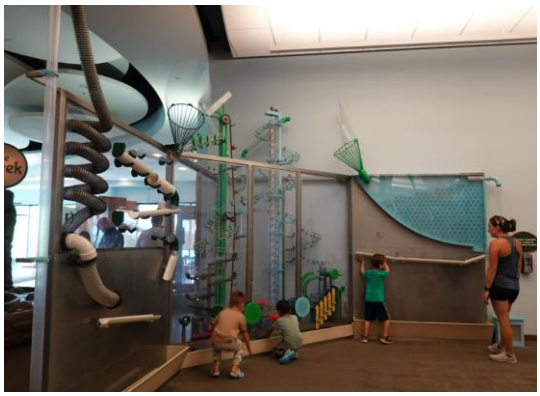



E. 常設展－*Playscape*®（幼兒遊戲區）：為 5 歲以下的兒童專門設置的展廳。展覽元素包含滾球軌道、攀爬設施、玩水設施、積木遊戲、沙坑等。

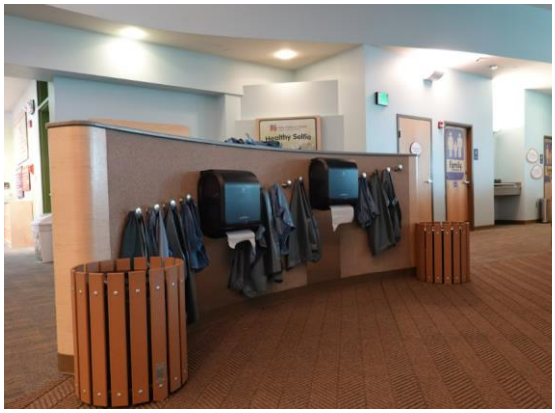




The
Pond


The climber is best
for children ages 2-5
Grownups are welcome to climb, too.
If your child doesn't feel comfortable
climbing to the top, they may need
to wait until they're a little older.
Please keep your shoes on
Sometimes, children climb up but change their minds
about coming down. You're welcome to climb up
to talk to them or contact a staff person to help.




The
Creek




The
Sandbox

【典藏庫房訪查】

由 Christian G. Carron 典藏部門主任 (Director of Collection)（下簡稱 Chris）進行導覽，以下心得及重點摘要：

A. 兒童博物館是一個以觀眾為基礎的博物館，而不是以物件（典藏）為基礎的博物館。所以 CMI 收藏的是那些能激發家庭和兒童學習興趣的東西，因此在典藏的標準上，會盡可能的選擇家庭成員間都會感興趣的物件，比如橫跨三代記憶的芭比娃娃或星際大戰等，也因此 CMI 的館藏中有大量的玩具收藏。

B. CMI 做了大量研究，並創造了一些工具來確定哪些物件可能激發家庭和兒童的學習興趣，例如叫做 ALFIE (Assessment of Learning Families in Exhibits)及 FLORES（Family Learning Object Research and Evaluation System）（詳如附件 2.1.及 2.2.），從而收藏具有科學價值或藝術價值的物件，收藏中有各種各樣的物件，從恐龍到流行文化玩具到藝術思潮，它們的共同點是能激發兒童的學習興趣。舉例來說，CMI 也收集那些反映社會變遷的物件，每一個變遷、變化都是一個教育機會。最新收藏的兩套美洲原住民設計師設計的服裝，結合了文化的傳統部分和現代用途。這個物件能為來訪的兒童講述包含傳統及現代應用的精彩故事。

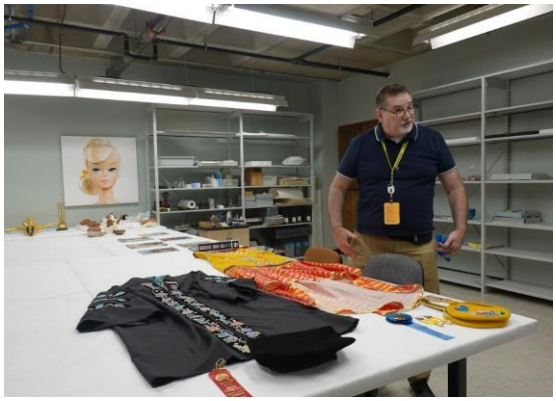
C. CMI 的策展人分為兩大類。第一類為藝術與人文領域，涵蓋人們創造和使用的一切，包含歷史，文化或人類學，美術，以及流行文化；第二類是自然科學，涵蓋自然界中發生的一切，包含古生物學，地質學，生物學。

D. 根據 Chris 的說明，CMI 入藏時將藏品分為三類。第一類是獨一無二的物，必須極力的保護它，僅能夠在封閉展示櫃中供人觀看。第二類是具有歷史或科學重要性但有很多類似物件的收藏，它是某種典型、但非獨一無二，這些通常也

只能放在展示櫃裡。第三類是安全可觸摸的，而且容易獲得，如果它被破壞，可以輕易地再獲得新的，或者它是某件更高級藏品的複製品，這些可以用來動手操作。CMI 時常將第三類藏品帶到館外，例如帶到學校進行相關的外展活動，策展人會為這些展品規劃相關的活動，或讓學校老師在校進行教學活動，這是 CMI 推廣與分享的策略之一。（典藏政策詳參附件 2.3.）

E. CMI 擁有高達 13 萬件的收藏，只有 5-10%的藏品會展出，所以其他 90-95%的藏品都在庫房。CMI 和其他多數的博物館一樣，面臨著館藏過多的問題，因此每年會召開五次董事委員會，研議要註銷（deaccession）的物件，經由審視「是否不再符合我們的使命？是否狀況不佳？是否與其他館藏重複？」，每年約會註銷 300 到 1000 件物件。









【訪談重點紀錄】

- 訪談對象
  - Monica Ramsey 經驗發展與家庭學習部門副執行長 (Vice President, Experience Development & Family Learning)
  - Susan Foutz 研究與評估部門主任 (Director of Research and Evaluation)
  - Elyse Handel 學前兒童教育部門經理 (Early Childhood Education Manager)

- 訪談重點整理

1. CMI 位在中西部印地安納州的區位，這個區域附近較少大型的自然史、科學、歷史博物館，因此 CMI 的展示主題包含前述各類型博物館的展示主題，像是常設展就有恐龍、古文明考古、生態環境、歷史人文等不同的主題，這使的 CMI 的展示主題與美國其他兒童博物館相比，更具有學科知識及學科分類性。
2. CMI 是一個以物件學習（Object-Based Learning）（詳參附件 2.4.）為基礎的博物館，展覽中幾乎都有展示品（物件），有時展品是展示的重點、有時活動是展示的重點。因此 CMI 的展示時常需要結合館內的收藏品－大量來自世界各地的藝術人文、自然史、當代趨勢的物件類別，如玩具、 漫畫、兒童畫作、昆蟲標本、恐龍骨頭化石等。
3. 關於博物館組織團隊：
   a. CMI 的整個組織團隊總共有 300 多人，大約有四分之一是兼職。教育部門底下有：典藏部、早期兒童教育部、家庭計畫部、學校服務、展覽開發部、體育部、解說員部，其中解說員部是整個博物館人數最多的部門。研究評估員隸屬在展覽開發部底下。然後教育部門外，有財務發展部門、營運部門、律師部門、行銷部門、政府部門、IT 部門。
   b. 解說員部門占有最大的比例。與多數兒童博物館不同，CMI 有大量的人力從事典藏與研究，在策展暨研究的人員有 15 名；此外由於 CMI 具有非常大的量能自辦、自策、自製展覽，因此在編制底下，亦有一定規模的人力負責館內展示及展品的實際製作。
4. 兒童博物館與典藏的關係：
   a. 博物館的本質就是必須擁有收藏，因此兒童博物館的緣由是因為大多數蒐藏或藝術品都太成人化了，所以產生一種新觀念，認為孩子們也應該有自己的博物館，孩子們值得屬於他們自己的藏品，這就是兒童博物館典藏的原點。所以就像其他歷史悠久的兒童博物館一樣，例如布魯克林、波士頓，CMI 是以蒐藏為基礎的兒童博物館。60-70 年代美國的科學中心開始流行，科學中心沒有蒐藏品，而過去的科學博物館有。70 年代到 90 年代建立的兒童博物館也有這樣的趨勢，它們沒有蒐藏，而是以展覽和遊戲為基礎，這是兒童博物館在美國博物館發展的歷史發展。

b. CMI 認為蒐藏可以輔助他們的展覽並且達到學習成效，在展覽及活動中使用一種基於探究的學習方法，叫做「看(see)、想(think)、好奇(wonder)」，它源自於很多不同的變體(variations)，叫做視覺思考 visual thinking。簡單來說，兒童會透過觀察進而進行不同問題的發想，過程中有助於兒童放慢思考，注意細節，同時解說員或指導員會提供更多的相關資訊，然後進一步進行思考創造討論，成為一個學習的歷程及脈絡。

5. 關於學習理論：CMI 的展示或學習脈絡統整包括物件學習(Object-Based Learning)、探究學習(Inquiry-Based learning)、遊戲學習(Game-Based Learning)、家庭學習(Family Learning)、「看(see)、想(think)、好奇(wonder)」等。
6. 關於教育人員／解說員：
   a. CMI 有大量的解說員(interpreters)，每個展覽都會配有一組工作人員或是解說員，他們會穿上「扮裝」來搭配展覽的氛圍和風格，會用正式或非正式的方式與遊客互動、對話或是進行遊戲，有時候會在固定的時段進行表演，這樣充裕的人力配置，讓 CMI 的體驗更為豐富，目標是讓人們與展示內容更完整的聯繫在一起，使得學習體驗更深刻。
   b. 承上，這些工作人員或解說員(interpreters)來自各式各樣不同的背景，包括教師、藝術領域、工程師等，在正式開始工作前，需要經過大量的訓練，學習與遊客互動，我們會教他們很多技能，接受家庭學習的培訓、以探究為基礎的學習培訓。
7. 展覽開發及評估：CMI 大多數的展覽從發想、策劃、到製作大約需要 2-3 年，有些展覽需要更久。展覽的開發策略及過程請參考資料如附件 2.5.，開發過程中進行原型設計(prototyping)和可用性評估。當它開放上架後，館方會再進行一輪改善評估(remedial evaluation)，試圖找出操作、可用性的困難，最後會進行總體評估(summative evaluation)。
8. 博物館的目標觀眾：CMI 核心服務對象設定在 6-10 歲，但是館中也有針對幼兒 2-5 歲的展覽。甚至館中也會推出一些適合 12 歲以上兒童的展覽，像是探討深刻議題及種族歧視的展覽。另外，因為 CMI 可以算是中西部的一個旅遊景點，因此也有大量的遊客（成人）會來訪。

9. 給國家兒童未來館之相關建議：首先最重要的是要非常清楚觀眾是誰；第二，無論你的博物館使命是什麼，為你的博物館創造自己的特色，並在各個方面體現，包含商店、餐廳、所有的展覽和活動，必須把使命體現在所有地方，是真正的將使命成為博物館的核心，而不僅僅是文字上的使命。

(三) 波士頓兒童博物館 Boston Children's Museum

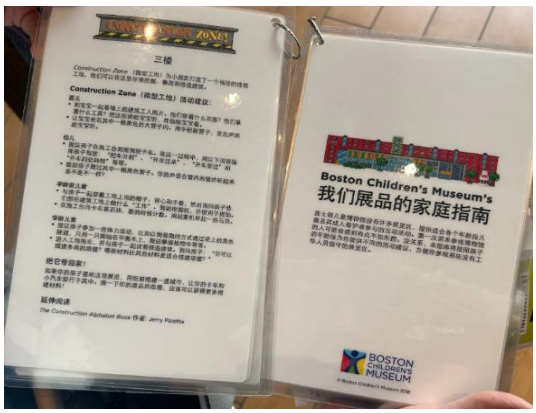
波士頓兒童博物館 Boston Children's Museum（以下稱 BCM）成立於 1913 年，是美國歷史第二悠久的兒童博物館，展覽面積為 88,575 平方英呎（5342.0177 m^2）[6]，致力於提供一個富有熱情、想像力、並以兒童為中心的多元學習環境，發展兒童的基礎技能和激發求知慾，同時也培養尊重、同理心和歸屬感的文化素養。該館為三層樓的展示空間，鼓勵動手玩、體驗與發現，其中特別強調「玩的力量」[7]，致力於透過玩，培養孩子們現在和未來成長所需的社交、情緒、認知和身體技能，因此 BCM 的展覽中會盡可能的提供「玩」、「遊戲」的環境，透過不同的空間、材料和任務挑戰，鼓勵互動、創造以及表達的機會，邀請兒童和家庭觀眾一起玩耍、探索和創作。BCM 官網上說「我們是為兒童（及其成人）創造機會利用遊戲的力量培養好奇心、技能和信心的專家。對我們和孩子來說，玩耍是有目的的。但這不是玩耍和學習。這是為了學習而玩。玩遊戲是為了建立社交關係。為了健康而玩。為健康而玩。為成功而戰。並盡情玩耍。」

本次訪查流程分為兩部分，第一部分：參觀考察展示內容及手法，體驗博物館劇場演出；第二部分：與館方進行交流訪談。

[6] 官網：https://bostonchildrensmuseum.org/about/museum-facts/
[7] 官網：https://bostonchildrensmuseum.org/learn/the-power-of-play/

【考察重點紀錄】

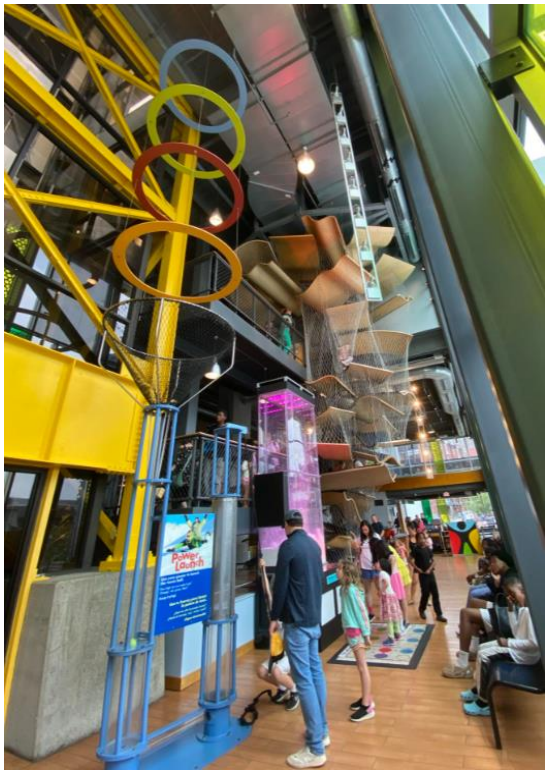
A. 家庭指南手冊：在一進入 BCM 的展區有一個服務台，提供展覽指南手冊，並有六種不同語言的版本。針對每個展覽面對不同的年齡層的群體，例如嬰兒、幼兒、學前班或小學生，提供父母或照顧者相關的展覽訊息、參考資料，提醒他們每個展覽、活動與兒童的成長和心理成長有何關聯。

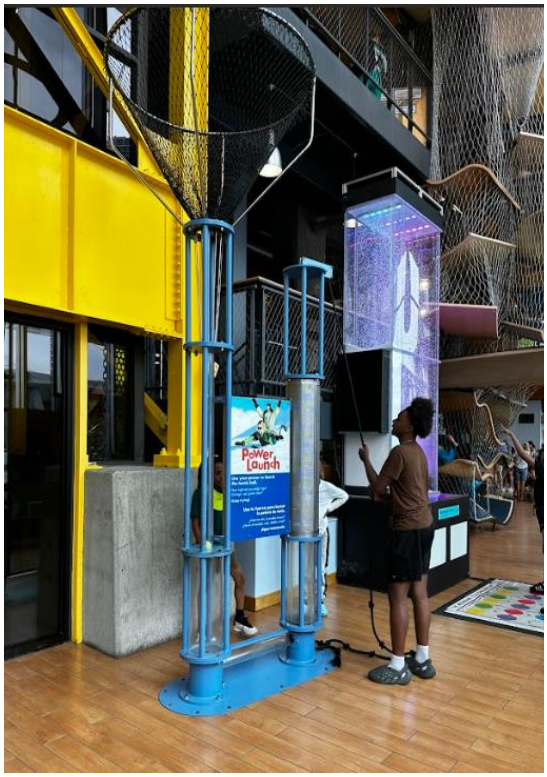


B. 常設展－*Kid Power*（兒童的力量）：這個展覽橫跨兩個樓層，是 BCM 最著名的展覽之一，由多項科學（力學）展件構成的展覽，每一項展件都鼓勵孩童用自己的身體、肢體動作或是動手操作，兒童可以在展件中測試自己的「能力」，像是自己可以跳多高？爬多遠？力氣有多大？等等，整個展覽創造出一個遊戲的空間，讓孩童可以在空間中自由的遊戲。整個展覽與 MIT（麻省理工學院）共同開發，展覽奠基於認知科學的研究、遊戲與學習之間的重要關係，以及遊戲如何影響兒童的認知發展，對於健康及情緒的發展影響等，而這樣的論述也同樣貫穿 BCM 的其他展覽。


Crank Up the
kid
PoWer!


Haz girar las barras
Turn the wheel

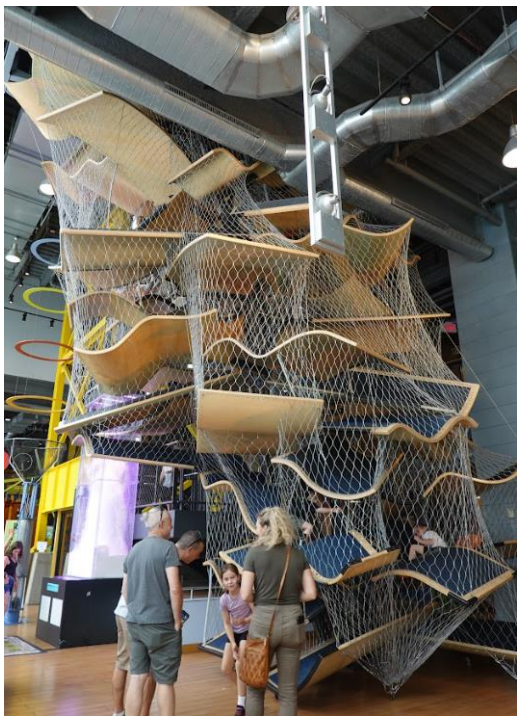

Power Launch


Power Launch

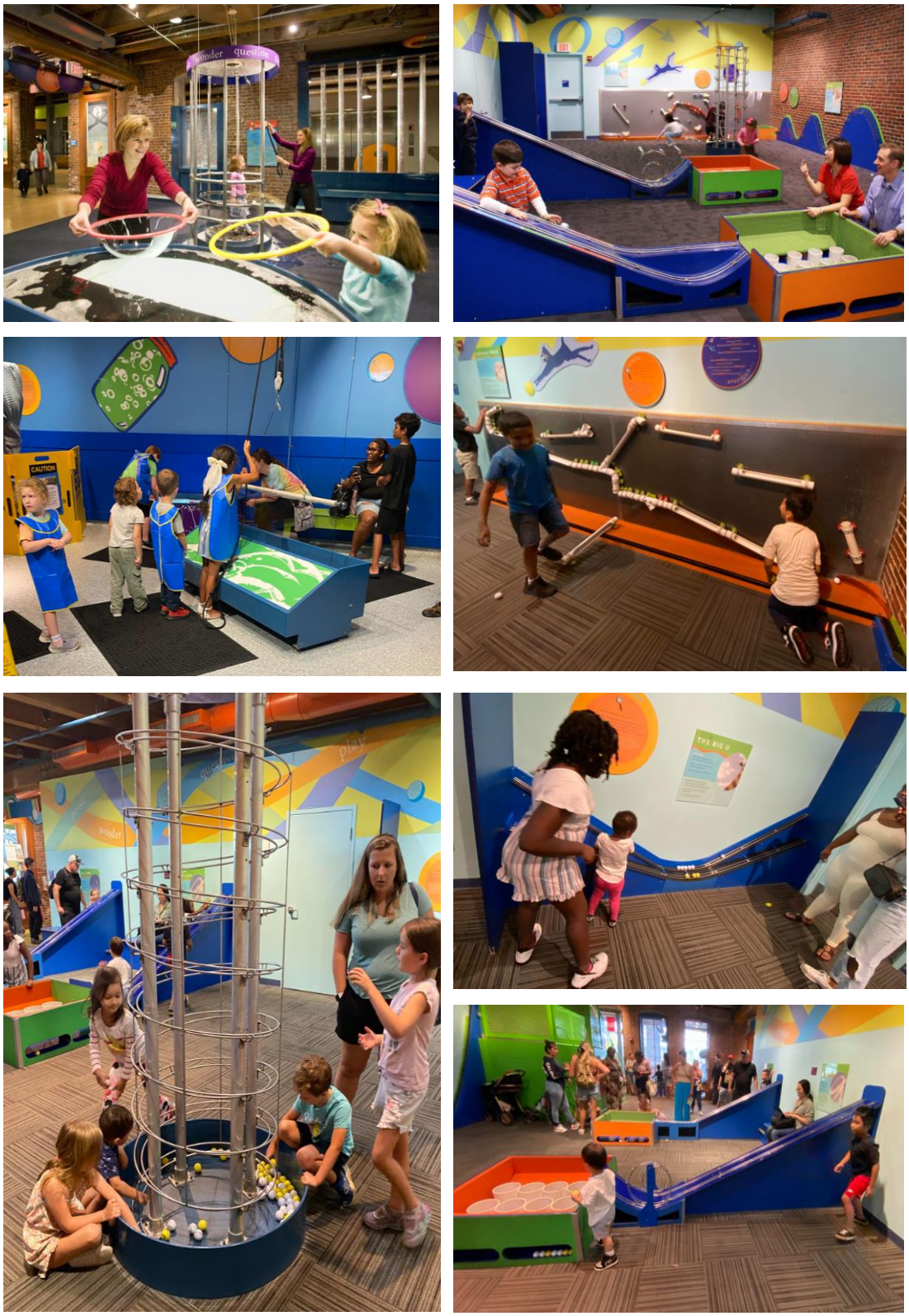

Pump Up
Your Power!


POWER STATION
Say go to Water!
Say no to Soda!
POWER TIP
Water makes your body powerful!
CONSEJOS SOBRE FUERZA

C. 常設展－*New Balance Foundation Climb*（攀爬架）：位於一樓展覽廳中央，一個橫跨兩個樓層的 Luckey Climbers 攀爬架，在視覺上充滿吸引力，材質和質感溫潤，是一個具有安全性的攀爬架。

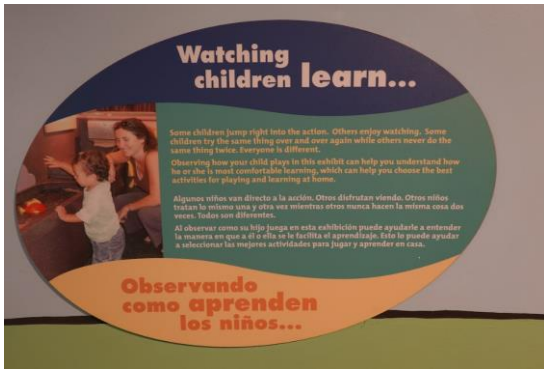


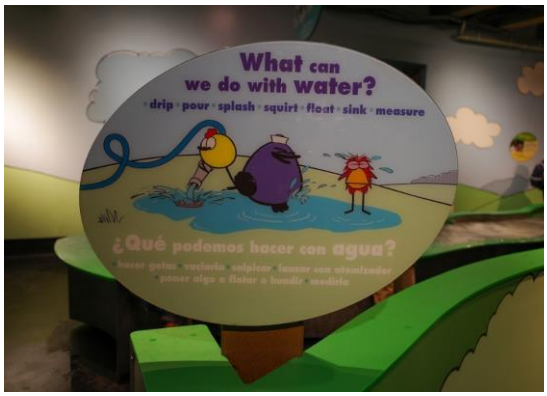
D. 常設展－*Bubbles*（泡泡）、*Raceways*（滾球軌道）：以兒童遊戲形式「玩泡泡」、「滾球」為展示重點的展覽，目的在引發兒童的好奇心、想像力及創造力，「滾球軌道」的展示除了遊戲外，也透過各種不同的軌道設計，讓兒童從中感受或學習力學的相關原理。



E. 常設展－*Peep's World*（玩水展覽）：以知名 IP 小皮大世界（Peep and the Big Wide World）故事情境導入包裝的玩水展覽，在這個玩水設施中，除了單純的

玩水外，也希望透過裝置遊戲的過程，引發兒童對流體力學相關原理的好奇，進而提出相關探究。

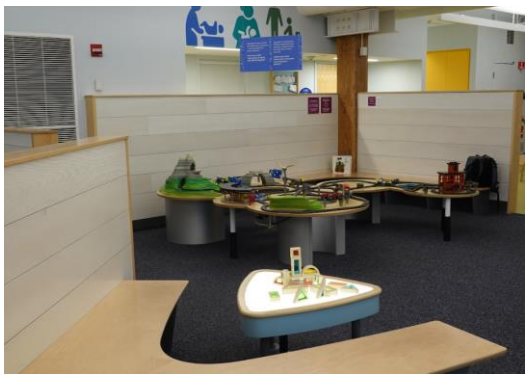


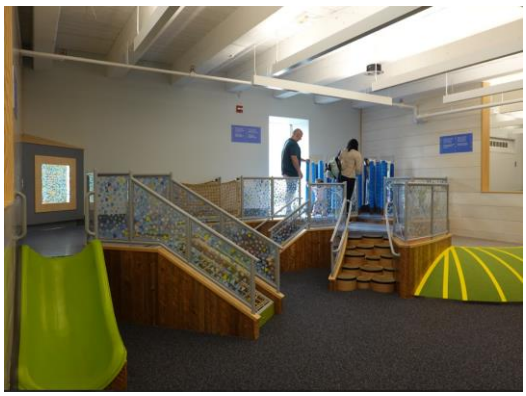
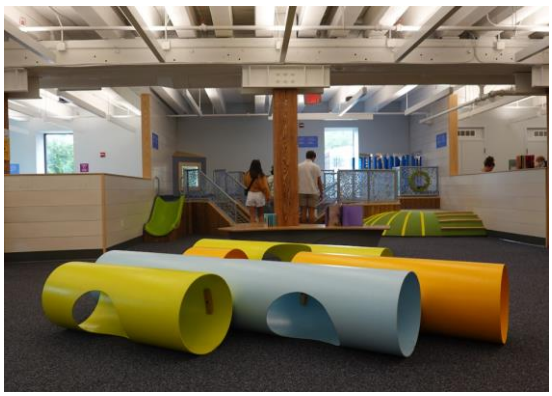
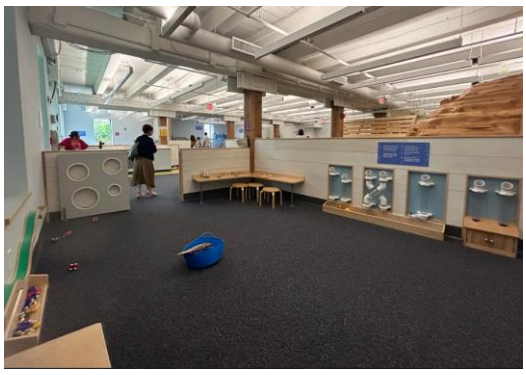
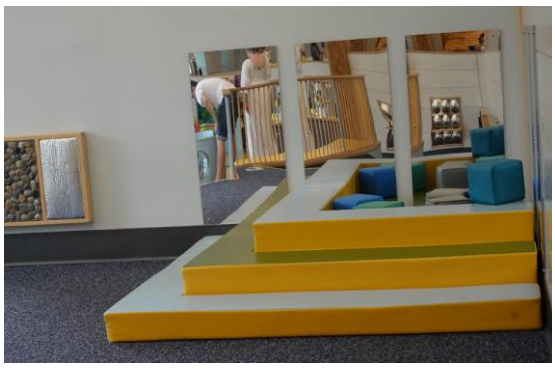


F. 常設展－*Arthur and Friends*（亞瑟和朋友）：結合知名卡通影集 IP 亞瑟的相關故事所製作的沉浸模擬展，展出內容有亞瑟家的廚房、亞瑟的醫院、亞瑟的攝影棚等等，不僅是角色，展覽中的故事情節也十分貼近兒童的生活經驗，其中最受歡迎的區域為亞瑟家的廚房，兒童非常喜歡在這個空間玩裝扮遊戲，而在後續的訪談中，BCM 的計畫與展覽部門副執行長 Melissa 也向我們表示，在館內的其他展覽中（如 *You, Me, We*），廚房的模擬空間一直都是最受兒童歡迎的展示。

G. 幼兒區－*PlaySpace*：為全球第一個為 0-3 歲幼童打造的博物館空間，為 3 歲以下的幼兒及其父母和照顧者提供了一個可以互動和參與的體驗空間，這些體驗旨在支持兒童的發展和練習基本的認知、身體、社交和情緒技能。



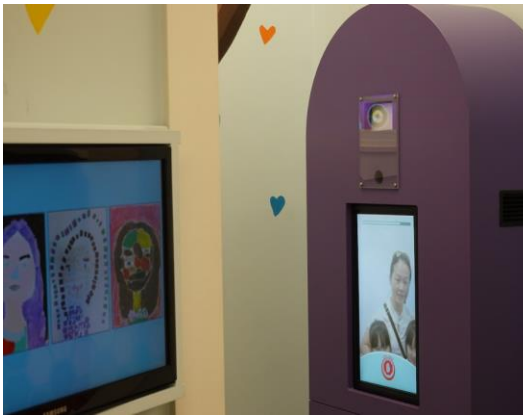


H. 常設展－*You, Me, We*（你，我，我們）：2023 年 2 月開幕的最新常設展，透過介紹社區環境，帶領兒童建立人際關係養成及社會適應的能力。

展覽分為三個不同的區域，每個區域對應其標題中的單字。「我」引導參觀者反思自己的身份，其中包括一個「自拍站」，讓觀眾思考「什麼讓你很棒？」，背景是當地青少年團體的青年肖像。「你」引導觀眾反思與他人的互動，其中包括廚房區的模擬空間，播放波士頓居民分享他們的家庭飲食傳統的視頻，孩子們可以同時（假裝／透過裝扮遊戲）準備一頓對他們有意義的飯菜。「我們」引導觀眾反思他們共同努力為社區帶來改變的能力。

此外，*You, Me, We* 展覽試圖和孩子們討論「種族主義」的相關問題，為了達到這個目的，展覽中利用很多「標示」和觀眾對話，試圖透過大人讀這些標語來帶領孩子開啟議題的討論。然而，館方和我們分享，在開展後他們作了補救性評估 (remedial evaluation)，有部分的觀眾表示這個主題或許不適合與年紀過小的兒童討論，有 74%觀眾表示在展覽中並沒有交談過，或者不記得有過交談，最常見的原因是「太忙了，沒時間說話」，這代表多數訪客與孩子在展覽中會忽略這些「標示」，另一個原因是展覽中的標示過多，造成了反效果，所以 BCM 考慮到實際情況作了檢討，移除並重新擺放了部分的標示。



I. 劇場 *KidStage*：與波士頓大學惠洛克教育與人類發展學院（BU Wheelock, Boston University Wheelock College of Education & Human Development）合作，表演者來自 BU Wheelock 的學生，非館方人員，透過與學校專業劇場人員的合作，提供館內觀眾一天兩場次的劇場表演，每場次表演時間為 40 分鐘。當日表演內容為繪本改編的劇目，表演舞台設計精簡，舞台表演人員約 7 名，現場場控人員約 2 名，透過音樂、舞蹈、肢體動作以及問答方式編排表演，表演內容適合 6 歲以下的孩童。劇場大約可容納 100 多名觀眾，屬於小型劇場空間。


J. 彈性活動空間－*The Common*：由於兒童博物館辦理活動的頻率高，BCM 的二樓有一個廣場空間，可以在這邊辦理各種活動，因為位在建築物的正中間，所以每當辦理活動的時候，可以有效地號召館內的參觀者參加活動，例如在此處辦理舞會、夏令營活動、生日派對等。空間配置上，中間有設置一個類似舞台的區域，也可以在這邊進行投影片的播放，當沒有活動舉行時，這個空間會設置一些不同的小活動，提供家庭或孩子們一個較為安靜的互動休憩空間。





K. 工作坊空間－Creative Labs、STEAM Labs、Art Labs 空間：和 CCM 一樣，館內設有工作坊空間，主題為動手做創意、STEAM、藝術及木工等。

【訪談重點紀錄】

- 訪談對象
  - Melissa Higgins 計畫與展覽部門副執行長 (Vice President of Programs and Exhibits)
  - Li, Lok-Wah 研究與評估經理 (Research and Evaluation Manager)

- 訪談重點整理
  1. 博物館組織團隊：
     a. BCM 的組織成員相對精簡，編制內共計 54 名，另外還有約 25 名的前台工作人員，前台工作人員少部分是在該館工作多年的員工，大多數會是由在波士頓上大學的學生擔任。
     b. 編制內的員工分為執行團隊部門（8 名：包含執行長、財務與行政高級副總裁、行銷與傳播副總裁、慈善事業副總裁、外交關係副總裁、展覽和專案副總裁、行政助理）、財務行政部門（12 名全職/兼職人員、 25 名遊客體驗大使／第一線員工、承包商公司－保全、清潔、設施維護）、

行銷與推廣部門（6 名全職/兼職人員）、行銷與傳播（6 名全職/兼職人員）、對外關係部門（3 名全職/兼職人員）、慈善事業部門（9 名全職/兼職員工）、活動及展覽部門（28 名全職/兼職員工）。活動及展覽部門最大的組織是教育人員，例如其中的STEAM 團隊中就有科學、科技、工程、藝術、數學等不同專業背景的專業人員。

2. 關於志工人力：考量安全性及保險的考量，BCM 並沒有長期性的志工計畫，僅有特定的活動或教案的情況下，會與專業的人員（例如工程人員）也就是志工合作，但都屬於單一事件、短期的項目。
3. 博物館跨組織連結/合作：
   a. BCM 長期以來一直與當地的大學緊密合作，像是與 MIT（麻省理工學院）、Harvard（哈佛大學）或是 BU Wheelock（波士頓大學惠洛克教育與人類發展學院）一直都有許多的合作研究項目，舉例來說，一樓的 Kid Power 展覽就是與 MIT 共同合作開發的展覽。
   b. BCM 本身的研究人員只有有 2 名，因此 BCM 的主要研究或項目，都是靠跨組織的合作來做相關的研究，如 Art Lab 與國家藝術教育協會（National Art Education Association）合作，STEAM Lab 與 Project Zero 合作。BCM 經常透過館際合作計畫取得贊助（如與新英格蘭水族館、博物館科學館和其他各地的兒童博物館聯繫，並建立了一個網絡來分享資源），並且跨組織間共同分享資源與研究成果 ，這對兒童博物館來說更為重要，因為多數的兒童博物館並沒有龐大的研究團隊。
4. 目標觀眾：BCM 的目標觀眾訂定在 0-10 歲的兒童及他們的照顧者或教育人員，儘管有時候會有年齡較大的手足參與，但 BCM 不會為了青少年或是 10 歲以上的孩子策展。根據統計調查，70%的兒童觀眾為 6 歲以下，也因此 0-3 歲的嬰幼兒區在 BCM 是非常重要、不可取代的展區。
5. 根據 BCM 的內部調查，廚房區、攀爬設施、粗大動作區以及以前的超市區（BCM 以前的展覽，目前已沒有）是館內最受歡迎的展示。綜觀下來，遊戲空間，也就是任何可以從事「遊戲」的空間是最受到孩子們歡迎的。
6. 關於換展頻率及如何維持觀眾的再訪率：
   a. BCM 的常設展通常會展出 15-20 年，因為孩子們的成長是非常快而且具階段性的，所以在不同的年齡段他們來到 BCM 會選擇不同的展區遊戲，

比如 0-3 歲、3-6 歲、7-10 歲都有他們專門的區域，他們會用符合他們年齡段的方式遊戲，並持續 5-6 年甚至更久，作為 BCM 忠實觀眾，他們成為青少年後，漸漸不再到訪，但是新的家庭和孩子會成為觀眾。BCM 很清楚自己觀眾是誰，以及他們的參觀模式，也因此 BCM 的常設展通常會維持非常久。

b. 從觀眾調查中發現，BCM 觀眾再訪的原因，很大一部分的原因歸功於「軟體」，也就是館內的人員和活動，觀眾非常享受、喜歡與 BCM 的館員之間發生的各種互動，館員們會在館內讓各種事情發生，像是吹泡泡、表演、舉辦各式各樣的活動。

7. 博物館與展覽特色：

a. 因為波士頓是一個科學之城，因此 BCM 也繼承了整個城市的基調，將科學的學習視為 BCM 的一項重要特色。也因此 STEAM（科學、技術、工程、藝術和數學、健康和保健、人文）的教育也成為 BCM 的展示特色。

b. 承上，雖然以 STEAM 作為 BCM 的特色之一，兒童博物館與科學博物館還是有本質上的差異，最明顯的差異在於策展策略及路徑上的思考，BCM 的策展思路是「以『玩』(Play)為核心」，以 Kid Power 為例，如何平衡 STEAM 及「玩」為成為關鍵，即便展件本身談論的是 STEAM，BCM 策展的核心主題、概念仍舊以「玩」為核心，整個展覽雖由多個展件組成（而這些展件更像是科教館的 STEAM 展覽裝置），為了避免孩童在展覽中的體驗是由單一展件構成，館方試著透過策展融合這些裝置（將多個構建視為一體），在展覽中創造流動及有機的體驗，去營造「好玩(playful)」的氛圍及情境 ，BCM 表示「我們在做的事是試圖讓 STEAM 本身變得更加好玩， 強化兒童在展覽中『玩／遊戲』的成分及精神，讓孩子在展覽玩及探索」。

c. BCM 對於「玩（Play）」有一套定義和學習框架，這些是根據 2020 年所創建的一份文件（如附件 3.1.），並依據這份文件設計體驗、思考遊戲和探索的方式。[8]

[8] 官網：https://bostonchildrensmuseum.org/learn/the-power-of-play/

8. 教育人員的特殊性：兒童博物館的教育人員與一般博物館的解說員(interpreter)不同，更像是扮演協助者的角色(facilitators)，協助到館的家庭及觀眾，能夠更融入每個展覽，也可以是提供家庭觀眾各式資源的角色（像是展覽中好玩的玩具要去哪裡購買？或是如何製作？），而不是直接地向觀眾演示或說明各式各樣的知識或教育目的。教育人員非常專注在照顧者及兒童之間的互動及反饋，同時具備非常多的技巧及知識，非常專注於促進展覽和活動的進行，不斷嘗試透過不同的教育活動或策展達到（教育）目的。
9. 展覽開發過程、策略及方法：一般而言，常設展的開發時間會很長，通常會花超過 2 年以上，*You, Me, We* 花了七年，因為常設展可能會在這邊展出 20 年，經過研究和評估，進行原型設計(prototyping)，以確保對展覽類內容非常有信心。整個過程中會邀請家庭來測試我們製作的原型，確保設計上的可行性。
10. BCM 在 2023 年 2 月開幕後，針對 *You, Me, We* 進行了補救性評估 (remedial evaluation)[9]，了解訪客如何與整個展覽互動，他們有哪些收穫，是否能夠傳達核心信息？他們在那裡做了什麼？他們有哪些反饋？並完成了一份研究報告，去年 3 月在 AAM （American Alliance of Museums 美國博物館聯盟）發表了研究成果[10]。BCM 表示展覽推出的前兩個月立即性的進行補救性評估，可以立即對無效的展示、展件進行補救或移除。
11. 關於展覽議題：BCM 表示雖然受眾的年齡層較小，但任何議題都可以和兒童討論，當然也包括嚴肅、批判性的主題，舉例來說族群／種族歧視的議題是經常在兒童博物館中談到的，因為這與他們的生活息息相關。
12. 關於空間規劃的相關建議：博物館建築物二樓正中間的 *The Common* 是一個能自由彈性運用的大空間（並設有舞台），可以用它來舉辦各種活動，也因為它位在博物館的中間，所以在這個空間舉辦活動，能夠很容易地把觀眾聚集過來。因為兒童博物館時常需要舉辦各式各樣的活動，像是舞蹈、藝術、慶典活動，所以十分建議規劃一個這種性質的彈性運用、聚會空間。

[9] 博物館展示研究中常做的幾種評估包括：front-end evaluation 形成前評估、formative evaluation 形成式評估、 remedial evaluation 補救性評估。

[10] AAM 網站：https://www.aam-us.org/2024/03/22/you-me-we-tackling-identity-and-discrimination-with-young-audiences/

13. BCM 目前的館藏已經過多，近期新上任收藏部主任將重新建構收藏的標準和準則，因為在過去的 100 多年裡，BCM 並沒有一個很清楚的收藏準則，即使 BCM 已經暫停收藏一段時間了，仍舊收藏了太多的東西。
14. 給國家兒童未來館之相關建議：
    a. 審慎的思考博物館位置的區域特性，誰是博物館的受眾，這樣才能創造真正適合的展覽及服務內容。
    b. 博物館內一定要有自己的策展部門及人員，必須真正的了解博物館觀眾需要的是什麼。

二、其他類型館所考察

(一) 菲爾德自然史博物館 Field Museum of Natural History

菲爾德自然史博物館 Field Museum of Natural History（以下稱 Field）著名的收藏包含世界上最大的暴龍化石—SUE，並擁有超過 2100 萬件標本。該館雖以「自然史」為主題，但在該館設有「教育中心」（Education Center），在中心的努力下，該館展覽一向以觀眾需求為導向，因此除了一般成人觀眾外，長期將「兒童」、「家庭」、「學校」視為其主要著力重點，因此該館展示除傳統物件及展板外，亦加入多元的互動體驗設施，並鼓勵觀眾動手與展件進行互動。該館有多元文化的視角規劃展廳，例如中國、非洲、太平洋島國等區域主題；同時也針對不同觀眾進行教育規劃，如 PlayLab 是為 2-6 歲兒童觀眾所打造。另外也提供各式教學資源與學習內容檔案開放下載，主題涵蓋地球科學領域、在家學習、學齡前學習、原住民等。本次考察流程分為兩部分，第一部分：參觀考察展覽內容及手法；第二部分：館方 Grainger Science Hub 及 Crown Family PlayLab 空間介紹導覽與交流訪談。

【考察重點與訪談紀錄】

- 導覽、訪談對象
  - Eduarda Briseno，甄素蓮教育推廣中心特殊項目資深經理 (Senior Manager of Special Programs in the Sue Ling Gin Center for Education and Public Programs)
  - Emmanuel Meenattoor, Grainger Science Hub 專員 (Grainger Science Hub Coordinator)

  - Elaine Kelley, 學前教育部門專員 (Early Learning Experiences Coordinator)
- 考察心得與訪談紀錄

A. *Grainger Science Hub*：由館內教育人員策展的（科學中心）空間，目標觀眾從 3 歲到成人，該空間配置有一個展示平台，平台上放置各式各樣的展品及物件，兩側會由教育人員進行相關的主題策展（大約每 3 個月會左右輪流更換一次主題），通常主題會配合目前館內正在展示的展覽進行延伸的策展。

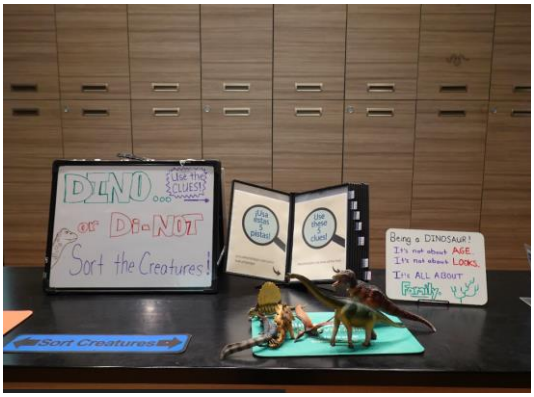
教育人員與館內的科學家（Field 是一個以研究為核心的博物館，因此編制內有相當規模的科學家團隊）合作策劃這個空間的各種企劃，試圖將館內科學家正在研究中、或是沒有機會向大眾分享的研究心得或故事與民眾分享。

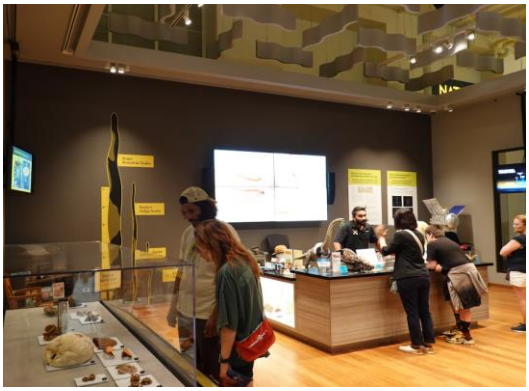
一般主題策展的規劃時間是 3 個月，科學家會在即將推出的展覽（館中的大展）推出前，會與教育人員一起共事，教育人員所要做的工作，便是將科學家艱澀的科學知識，轉換成民眾認知水準的有趣故事。

館方希望透 Science Hub 創造一個與公眾溝通的開放平台，一個說故事平台，藉此加深展覽與在地的連結性。這裡的活動是自我引導的，觀眾來到這邊可以自由地參觀探索，教育人員也就是引導員(facilitator)會在一旁視情況進行故事的演示或是回答問題，取決於互動的程度，演示可能只有 2 分鐘，也可能長達 45 分鐘。

當天的展示平台主題包括「真菌」、「隕石」、「蟒蛇」等，這些主題幾乎是每天進行更換的，會由當天負責的教育人員選定想和民眾分享的主題。

幾乎每個星期五，會在 Science Hub 舉辦「與科學家見面」的活動，真正的科學家（來自館內或是合作單位）會來到這裡（從上午 11 點到下午 1 點），與民眾交流對話，談論他們的工作，分享他們的研究，Field 館內的科學家及觀眾都非常喜歡這個活動，因為與科學家直接面對面的交流，對兒童、青少年非常具啟發性，因此家庭觀眾是最主要的參與對象。





B. *Crown Family PlayLab*： Field 於 2007 年開放 *Crown Family PlayLab* 營運至今，共計 7,200 平方英呎，是專門為 2-6 歲的孩子和他們的家庭所規劃設計的活動及互動空間，同時也開放給 6 歲以下的學校團體使用，並提供學校團體預約

的方案，一次是 45 分鐘，包含 15 分鐘的工作坊課程，課程的費用是 100 美元／一個班級。

入口處有告示 *PlayLab* 的規則，像是成人和孩子要待在一起、要保持步行速度和安靜的聲音、使用完材料要放回原處、禁止飲食等安全規則。

入口處設置了一個前台，並會安排館方人員在這邊管制進場人數，確定是否有可疑的（例如沒有小孩）成人入場，同時提醒觀眾場地使用規則，並設有家庭相關的服務設施，包括家庭觀眾專用廁所及嬰兒車停放區。

空間內的展示分成數個獨立的小展區，包括伊利諾州森林的區域（服裝扮演和木偶戲）、普韋布洛區域（美國西南部原始住民的模擬家屋、角色扮演）、音樂工作室（體驗傳統樂器）、亞馬遜河進行野外工作（帳篷、模擬露營）、恐龍挖掘區等，並規劃有活動教室及閱讀休憩區，通常館方會展示跟當月（文化遺產月 Cultural Heritage Month）有關的書籍。

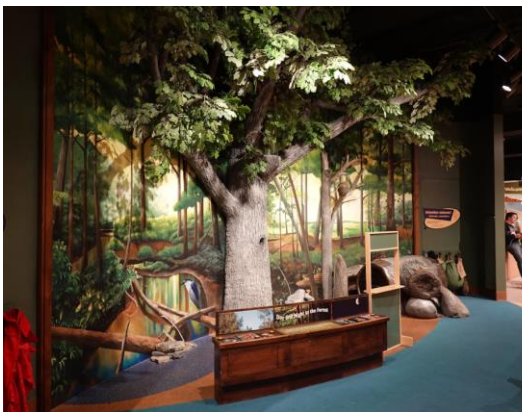
PlayLab 的 Discovery Studio 為活動教室空間，與一般博物館的工作坊及活動教室規劃相似，備有洗手台，是整個博物館最主要的兒童相關課程舉辦場域。暑假時會定期辦理夏令營活動，每週三（伊利諾州居民免費入場日）舉辦「PlayLab PlayDates」活動，活動一般是故事時間或互動遊戲活動，時間約30分鐘，此外，教育中心也會不定期的推出其他教育活動，例如與芝加哥公共圖書館活動，配合不同的節日舉辦活動，例如七月障礙自豪月（ Disability Pride Month）、文化傳承月（Cultural Heritage Month）等。

整個博物館包含 Family PlayLab，隨機設有機動性的 pop-up program 攤位，這些 pop-up program 其中一個目標是讓小朋友能夠親手接觸到真正的標本，活動主要由館內的青少年志工負責帶領進行教育中心推出的各種小活動，例如考察當日，青少年志工正在引導的「神奇貝殼（Sensational Shells）」活動，小朋友可以探索不同種類的貝殼，並按照大小、重量、粗糙程度等來分類。

青少年志工大多數是高中生，他們會接受培訓，從事志願服務可以幫助這些青少年更加了解博物館並探索未來的生涯志向，並獲得相應的服務學習時數。

整個 PlayLab 活動使用的展品都來自「哈里斯學習收藏（Harris Learning Collection）」，這是博物館準備的教育展品，教育人員會準備準備一個標本盒，裡面可能會有一些標本，像魚類、哺乳動物、昆蟲，或是一些文化相關的物件，這些展品幾乎都是原件，但在品質分類上，屬於可以被碰觸從事教

育活動的藏品，學校老師們也經常租用這些盒子，帶到課堂上使用。館中的教育人員也會為這些收藏品規劃相關的教案或活動套裝(program kit)，提供給學校老師使用。




Welcome to the Discovery Play Studio


Sign-up for PlayLab Camps + Classes!
Itty Bitty Investigators Classes
PlayLab Summer Camps


SCIENTIFIC SKETCHING
DRAW ME!

(二) 科學與工業博物館 The Griffin Museum of Science and Industry

科學與工業博物館 The Griffin Museum of Science and Industry（下稱 GMSI）成立於 1933 年，是目前西半球規模最大的科學博物館，具備多種豐富的常設展品和設施空間，並以此為基礎，發展出完整的展示教育功能。博物館的教育計畫著重 STEM 領域的人才培育，包含教師、學生、青少年、學者等；同時館內提供學校教師許多教學資源，如教案、互動引導、影片等，亦提供學校以外的學習資源，以增進不同年齡層的學生對於科學的興趣。

【考察重點紀錄】

A. 沉浸式主題展一：*Notes to Neurons*（給神經元的訊息）：是 The Griffin Studio（GMSI 的數位空間）推出的第一檔展覽，展覽的敘事講述的是「音樂」如何透過神經元影響我們的情緒，整個展覽是一場多媒體體驗，結合了沉浸式音效、手勢與動作識別等互動技術，邀請觀眾踏上探索音樂力量的旅程。感受音樂在日常生活中的影響，以及它如何讓我們彼此連結。

展覽需要預約進場，每 15 分鐘為一場次，觀眾僅需到現場預約即可參觀。整個展覽分為四個單元，每個單元各有一個獨立的小展間進行不同的多媒體沉浸體驗。體驗全程由館內導覽員帶領，觀眾必須依導覽的指令，依序體驗每個展間內容，也就是每一個展間體驗結束後，導覽員會統一帶領體驗者到下一個展間進行下一個體驗。

第一個單元是講述音樂如何透過神經元傳遞到大腦，在這個單元中，透過沉浸式的觀展體驗，觀眾彷彿穿越大腦，親眼見證音樂如何刺激神經元並在其中傳遞訊息。第二個單元利用不同類型的音樂如古典樂、爵士樂、搖滾樂、嘻哈音樂等，讓觀眾感受不同的音樂對每個產生不同的影響，值得注意的是，在這個展間中，導覽員會與觀眾互動，詢問大家喜歡的音樂類型是什麼，然後現場幫大家「點歌」，並邀請觀眾一起在場域中跳舞、進行肢體律動，直接現場讓觀眾感受音樂的力量。第三個單元設置了心臟感應設備，只要握上展覽中的偵測把手，螢幕上便會同步顯示你的心跳，展覽會播放各種不同的音樂，有讓人緊張、放鬆或是恐懼的各種音樂，與此同時，觀眾得以再次見證音樂對生理的影響。四個單元，在展覽中設置了感應裝置，地面會隨著觀眾移動產生投影效果，同時牆面上設置多個感應裝置，觀眾只要靠近就會有指向性喇叭播放相對應的音樂，這個單元是整個體驗的結尾，帶領觀眾回顧生命中的重要時刻，例如生日、畢業典禮、結婚等等，是不是每個人生命中的某些特殊時刻都有那麼一首歌，每當那首歌響起時，就能勾起那些重要的回憶。


Notes to Neurons 有效的讓觀眾親身體驗「音樂」是如何透過神經影響我們的生理以及心理，用相當感性的內容及手法作為結尾，讓我們親身體驗到一個好的文本，透過精巧、合適的多媒體和感應技術創造沉浸式體驗，將科學主題的內容透過藝術轉化成精巧動人的展覽。

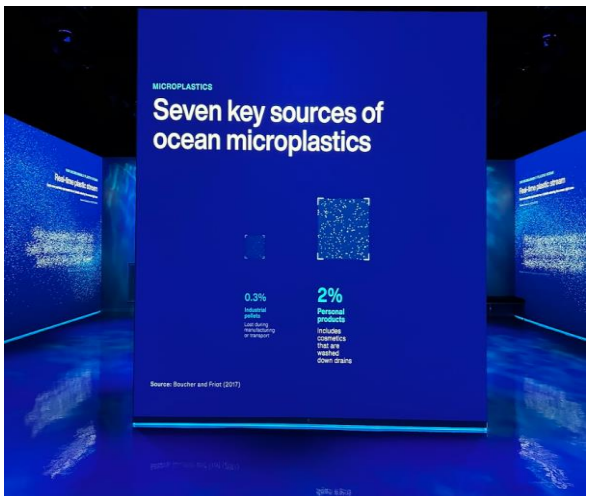
B. 沉浸式主題展二：*The Blue Paradox*（藍色悖論）

由美國莊臣（SC Johnson）與保護國際（Conservation International，非營利團體）共同合作的沉浸式展覽，內容是帶領觀眾直接面對海底塑膠污染的議題，展覽由「導入走廊」及「五個展間」所組成。

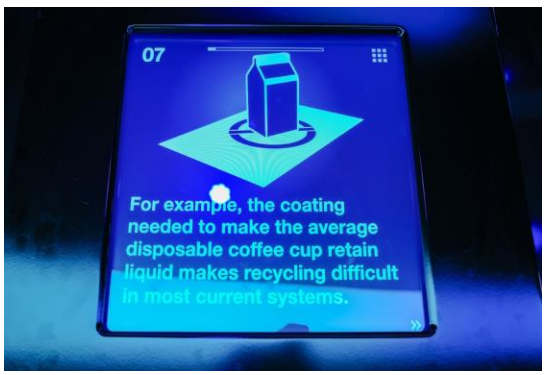
「導入走廊」上懸掛了 1,278 條回收塑膠魚作為裝飾，是知名環保藝術家奧羅拉·羅布森（Aurora Robson）的大型作品；走廊兩側則是呈現國家地理攝影記者 Randy Olson 的攝影照片 ，透過攝影作品，讓觀眾看見海洋塑膠污染問題對世界各地和海洋物種的嚴重影響。

第一個展間是一個沉浸式展間，透過沉浸在 LED 波浪螢幕牆的海洋圖像中，觀眾可以徜徉於色彩繽紛的珊瑚礁和迷人的水母群中，了解並想像海洋對地球的作用，藉此讓觀眾意識到生態環境的重要性。


第二個展間，觀眾可以透過地圖和圖形，了解塑膠污染在地理上的位置、哪些國家是最大的污染源、海洋中污染的嚴重程度等。同時透過螢幕上投放相關的問題意識，如「進入海洋的塑膠數量不斷增加，對世界各地的海洋生物、生態系統和食物鏈產生了影響」、「地球上的生命依賴我們的海洋」、「進入海洋的塑膠數量不斷增加，對世界各地的海洋生物、生態系統和食物鏈產生了影響」、「由於塑膠可能需要數百年才能分解，因此這個問題不會很快自行消失」，透過這個展間，觀眾將瞭解海洋塑膠汙染的嚴重性，以及塑膠汙染正在造成的問題和影響。



第三個展間，邀請觀眾進行問答，透過問答的過程，觀眾將省思塑膠如何在日常生活中被廣泛使用的同時，也成為海洋生態系統和地球面臨最嚴重的污染之一，這個展間再一次的回應展示主題「The Blue Paradox」。透過問答，觀眾將意識到，這些塑膠汙染問題是存在解決方案的，並且可以從你我自身日常生活中著手。



第四個展間透過連續的傳送帶，顯示正在進行塑膠生產的即時情形，生動地描繪了社會對大規模生產塑膠的依賴。這種視覺敘事延伸到房間後半部分的影片中，強調由於塑膠消耗不斷增加，回收有限，迫切需要解決方案。

第五個也是最後一個展間，強調行動和希望，透過強調團結、創造變化的視覺效果，傳達「集體變革的行動，來自每一個個體的努力」。螢幕上的計算器計算個人的塑膠足跡，揭示了每個微小動作的重要性。另一面展牆展示了一些創意解決方案，例如用回收塑膠製成的鞋子、參與當地的海灘清潔活動等。最後，觀眾可以輸入自己名字宣示參加行動，會做出改變的個人承諾，承諾牆將會呈現甫輸入的姓名資料。

三、其他設施考察：兒童遊戲場及戶外景觀設施考察

(一) 芝加哥千禧公園 Millennium Park

千禧公園位在美國伊利諾州芝加哥市中心的大型公園，是美國密西根湖湖畔重要的文化娛樂中心，涵蓋整個格蘭特公園西北邊 24.5 英畝的土地[11]。每年有數百萬的遊客來訪，是美國中西部人氣最高的旅遊景點。考察重點為公園各項設施及公共藝術，以及城市居民或遊客與公園的互動。

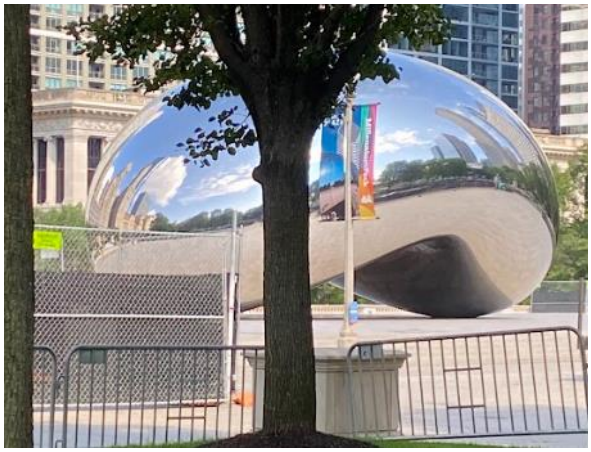
【考察重點紀錄】

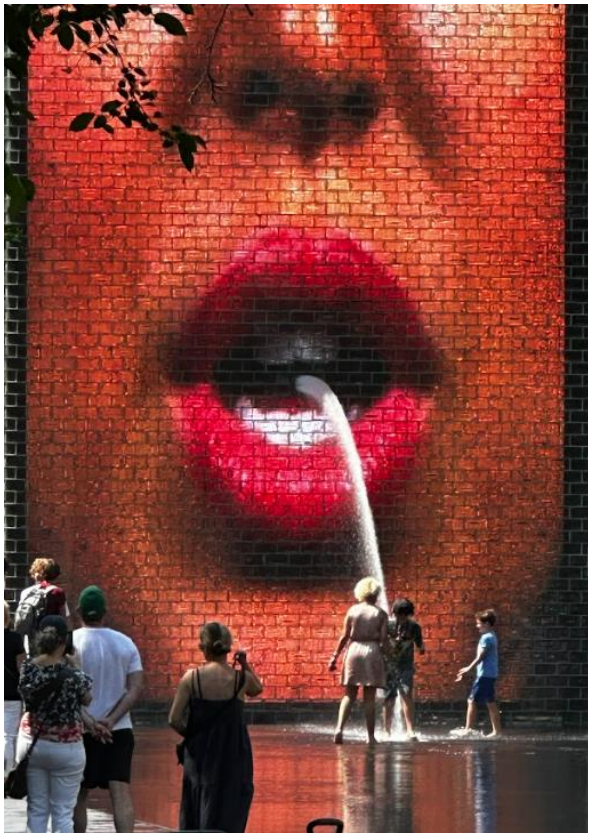
A. Cloud Gate 雲門雕塑：因其外形又被俗稱為「豆子」（the Bean）是一件由英國藝術家 Anish Kapoor 所設計的公共藝術作品，雲門的靈感來自於液態水銀，擷取其動態形式和反光表面，優美地改變了城市的天際線。它吸引遊客在其高聳的拱門周圍和下方漫步，帶來沉浸式和互動式的觀賞體驗。[12]

B. Crown Fountain 皇冠噴泉：位於公園內互動式公共藝術，由加泰隆尼亞藝術家 Jaume Plensa 設計，噴泉由兩座 50 英呎高佈滿 LED 螢幕的玻璃磚塔組成[13]，一千名居民的臉以隨機順序出現在 LED 螢幕上，水柱間隙地從笑臉的嘴中噴出，讓作品充滿了趣味性，此外，噴泉也成為孩子們城市中戲水一處。

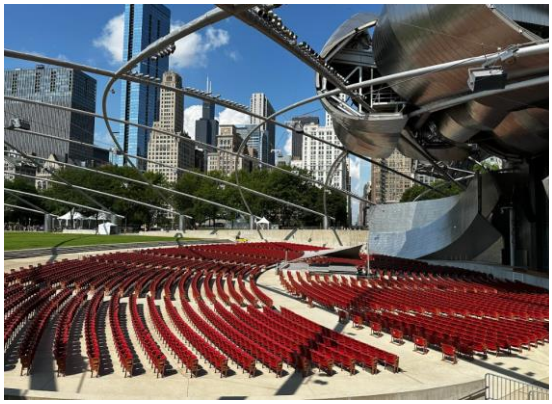
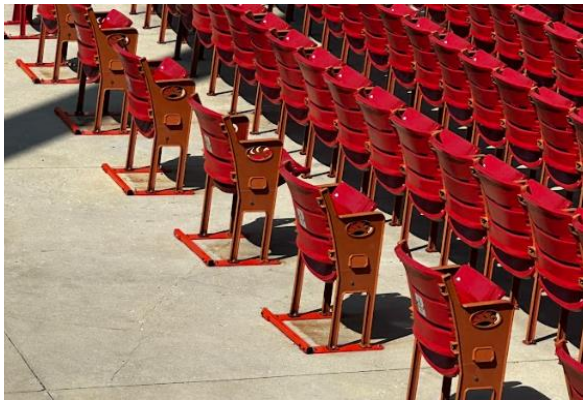
C. Jay Pritzker Pavilion 傑·普利茲克露天音樂廳：是千禧公園的中心建築，表演廳設有 4,000 個固定席位，後方草地可容納 7,000 人（草地下方有地下 3 層的地下停車場）。上方的網格結構延伸到大草坪上，既具有建築美感，又具有隔音功能，網格內裝有高品質的音響，可在整個場地產生均勻的音質，產生有如室內音樂廳的聲學效果[14]。現已成為城市的文化中心，時常舉辦各種音樂演出，露天設計及美好的天際線景觀，使它成為最受市民及遊客喜愛的聚會場所。

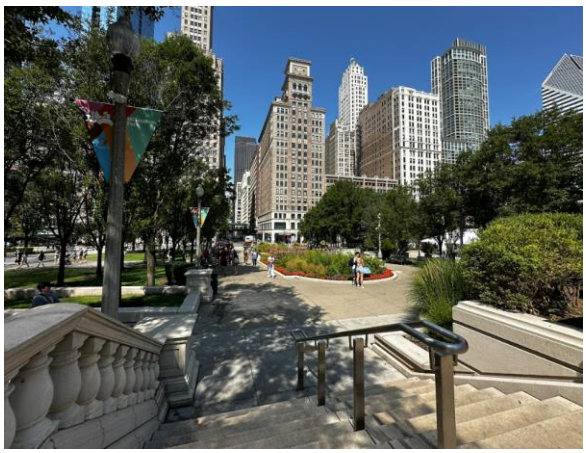
[11] https://www.architecture.org/online-resources/buildings-of-chicago/millennium-park
[12] https://zh.soundoflife.com/blogs/design/anish-kapoor-contemporary-art
[13] https://en.wikipedia.org/wiki/Crown_Fountain
[14] https://www.architecture.org/online-resources/buildings-of-chicago/pritzker-pavilion







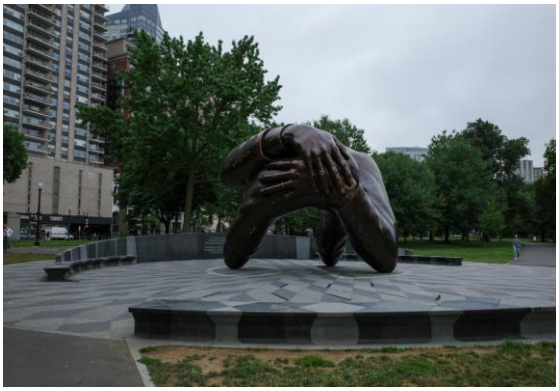
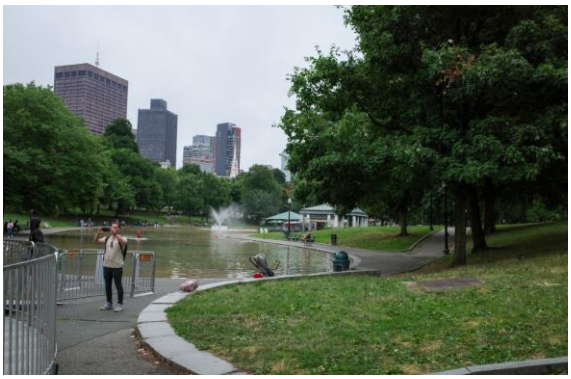


(二) 波士頓公園 Boston Common 及波士頓市政廳廣場遊戲場 Boston City Hall Plaza Playground

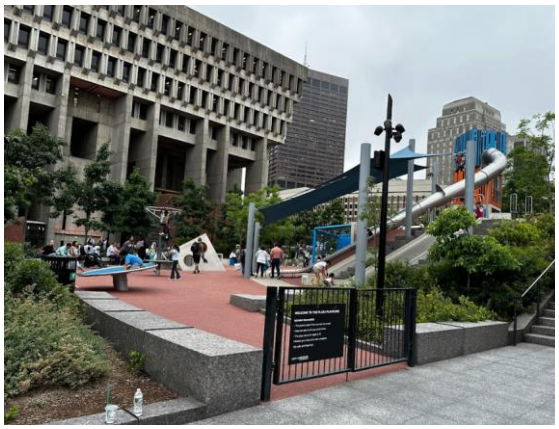
波士頓公園 Boston Common 是美國波士頓市中心的一個公園，身為美國文化起源地的波士頓，擁有許多歷史最悠久的事物，而這座創建於 1634 年，是美國最古老的城市公園。公園中坐落著一些銅像及銅製的雕塑藝術品，整個公園的風格設計比較古典，可以看出公園具有悠久的歷史。

青蛙池 Frogpond 是波士頓公園最廣為人知的景點，夏天時是單純的戲水池，冬天時會作為溜冰場使用。

蝌蚪遊樂場 Tadpole Playgroud 是公園內的兒童遊戲場，裡面是一座中大型的攀爬、溜滑梯遊具，值得注意的是，配合整個公園風格的基調，遊具的顏色選用深綠色及褐色，風格上選用較古典的搭配，讓這個人造的遊戲場非常和諧地融入整個公園景觀中。


波士頓市政廳廣場遊戲場 Boston City Hall Plaza Playground 位於波士頓市政廳前的遊戲廣場，地板考量兒童的安全性以塑膠彈性軟墊鋪設，利用地勢地高低起伏創造空間的趣味性及遊戲性，廣場中設置許多不同的攀爬空間和各式遊具，滑梯因為高度增加了刺激性，另外也設阿基米德水車及玩水的區域。







參、結論與建議

一、結論

本次美國中西部考察，本團隊共考察了3所美國中西部指標兒童博物館，分別為芝加哥兒童博物館 (下簡稱 CCM)、印第安納波里斯兒童博物館 (下簡稱 CMI) 及波士頓兒童博物館 (下簡稱 BCM)，3 所兒童博物館根據所處的地理位置、區域、文化特性及歷史發展脈絡發展出各自不同的風貌，透過與館方主管及教育人員的訪問交流進行相關分析，以下就3館所展館特色、教育理論、典藏策略進行分析，並提出有關國家兒童未來館之相關建議。

根據 ACM 美國兒童博物館協會統計，美國有超過 300 所不同規模的兒童博物館，其中可以發現，兒童博物館具有其地域性，會根據地方的需求或區域的特色發展出不同的兒童博物館形式。以本次考察館所舉例，CMI 位於美國中西部，是一個各類別博物館相對較少的區位，CMI 發展出更為綜合學科性的兒童博物館形式，館內的展覽彷彿是一般自然史、科學、人文博物館的兒童廳大集合，將原本成人向的學科展示內容以兒童觀點轉譯，並用更為互動式、動手做的展覽方式呈現。

BCM是全世界歷史第二悠久的兒童博物館，位在波士頓這個以Harvard、MIT等世界知名的高等教育及眾多強大的研究機構著名的城市，波士頓被譽為科學之城，也因此 BCM 長期與當地的學術單位、研究組織投入各式兒童教育研究，成為兒童博物館中推動 STEAM 教育及遊戲學習的領頭羊。由一樓的經典展示 Kid Power，便可以看出濃厚的科學（STEAM）底蘊。CCM 則為三者中最年輕的兒童博物館（僅近 40 年），位在美國的第五大城芝加哥，是美國金融、文化、政府和商業機構的重要中心，CCM 的地理位置位在觀光熱點海軍碼頭，周圍有豐富的觀光及商業設施，也因此與 CMI 和 BCM 相比，發展出更具城市觀光特色的展示內容。

除了前述地理位置不同的影響，在博物館的歷史發展脈絡上也有所影響。毫無疑問的，目前的普遍共識是，兒童博物館與傳統博物館不同，並不是以典藏和研究為出發，而是以「兒童」，也就是觀眾導向為核心的博物館。然而，兒童博物館的起源一開始仍是以傳統博物館典藏的概念出發，嘗試建立一個使兒童能夠像成人一樣接觸收藏品或物品的博物館，兒童博物館尋求的是「典藏適合兒童的藏品」， 也因此，歷史較悠久的 BCM 及 CMI 皆仍保有博物館的「典藏」傳統。隨著美國博物館發展上漸漸出現新型態的館所，如「科學中心」這種沒有典藏以教育為核心的館所，博物館不再將典藏視為唯一且必要項目，至此之後，兒童博物館也依循這樣的發展，捨棄典藏的概念。據此發現，後期新設立的兒童博物館如CCM，已不再將「典藏」視為重點。

此外，透過這次的考察，與3所兒童博物館的館方交流討論「兒童博物館的教育觀點或學習脈絡」後發現，典藏與否與博物館間的教育理論有著密不可分的關係。根據訪問，3所館所中，CMI是館藏量最為豐富、典藏政策最為完善的館所（詳如附件 2.3. Collections Management Policies and Procedures），他們對自己的館藏引以為傲，並持續新增與註銷藏品。CMI 所採行的教育理論分別有物件學習理論（Object-Based Learning）以及家庭學習理論（Family Learning），這些理論與他們的典藏息息相關，他們更加關注展覽中是否能透過「藏品／物件」啟發家庭觀眾，是否能用藏品講述一個好的故事，也因此「是否能激發家庭的學習興趣」成為他們是否收入典藏的標準（詳如附件 2.2. FLORES）。反觀相對年輕的 CCM 並沒有館藏，他們的博物館教育理論更加強調兒童發展、兒童心理及兒童教育本身，從他們的教育者手冊中（詳如附件 1.2.）可以看出，他們關注的是兒童本身，包括認知、動作、情緒等的發展。最後，BCM 的情況則較為複雜，儘管他們仍保有典

藏，館方卻向我們透露，「目前館藏已經過多，他們已經停止新增館藏好一段時間了，長久以來他們並沒有制定一個好的、清楚的典藏政策」，而事實上，他們的博物館教育理論早已偏離展品或物件為核心的脈絡，轉而更加綜合性的 STEAM 學習理論。儘管在教育觀點上各館所或有不同，透過訪談並實際訪查 3 所博物館的展示內容、展示方式，仍舊可以歸結出，「玩」、「遊戲學習」、「動手做」是兒童博物館不變的核心精神。

二、建議

以下就本次考察，提出可供國家兒童未來館未來借鏡之重點建議。

（一） 建議本館展示結合台灣的在地文化特色

兒童博物館作為一個社區兒童成長過程密切相關的教育機構[15]，這種「社區服務」的特性，使兒童博物館與地方有著密不可分的關係。而根據本次的考察，可以在各館所間看到他們如何將所在地的地方特色，如文化脈絡、地理環境、城市景色轉化成各館所的展示內容及特色中。CCM 的 *Water City*（水之城）及 *Play It Safe*（消防隊職業體驗展）兩個展覽分別融入芝加哥的城市景觀及歷史文化特色；CMI 因應美國中西部產化石的特色將 *Dinosphere*®（恐龍展）作為全館最具代表性的展示，博物館建築外觀更直以恐龍作為主題；而 BCM 因應波士頓科學之城的城市特色，將 STEM 教育作為館所的特色發展。因此，本館若以國家級館所做為定位，建議應找出「台灣的在地文化特色」，尤其是與兒童生活息息相關的面向，並將其融轉化為本館展示的內容特色。

（二） 建議本館展示須將兒童普世性、感興趣的主題及遊戲方式作為重點考量

本次考察可以發現，儘管兒童博物館的展示主題十分多樣，各館所的展示主題仍舊可以歸納出幾個相似的主題，而 CCM 與 BCM 的訪談中也都有提到，在兒童博物館中存在著兒童普世性、感興趣的主題，而這些主題一般都與兒童的生活經驗息息相關，例如超級市場（Grocery）購物、廚房、露營、交通工具、職業體驗、模擬社區生活（多元族群及文化生活體驗）等。此外，兒童的遊戲方式也具有普世性，無論在哪個文化情境下成長的兒童，隨著發展，在各個年齡段，都會有相同的遊戲方式。普遍來說，孩

[15] 陳涵郁. (2011). 兒童博物館的百年發展. *Journal of Museum & Culture*, *1*, 35-60.

子們喜歡玩水、體能遊戲、動手操作以及能激發兒童好奇心的有趣裝置，這也使得玩水裝置、攀爬設施、工作坊、滾球裝置（或是空氣迷宮）這些設施成為兒童博物館的必備項目。因此建議本館展示內容將前述兩點納入規劃及考量。

（三） 建議本館的規劃，應將如何營造「好玩」的遊戲氛圍及環境視為首要目標

CCM 在訪談中談到他們專注於營造「沉浸式的（遊戲）環境結構（ structure of the immersive environment），目的是讓孩子進入環境中不需要指示，便能自主了解情境並開始遊戲、學習」；BCM 與我們分享 *Kid Power* 的策展時，也向我們強調「在展覽中創造流動及有機的體驗，去營造『好玩 （playful）』的氛圍及情境」；ACM 2023 年網站發表的文章 *Information Brief: The power of play in children's museums and elsewhere*[16]也同樣重申「玩」的重要性以及「玩」在兒童博物館中所扮演的角色，包括幫助兒童學習社會溝通與團結合作、促進身心健康與情緒發展、激發創造力及想像力、培養跨文化的同理心及合作力等。由此可知，「遊戲」一直是兒童博物館強調的核心精神，因此建議本館無論是在軟體或是硬體的規劃上，都必須將如何營造「好玩（playful）」的遊戲氛圍及環境視為首要目標，以服膺兒童博物館的核心精神。

（四） 建議展示發展的過程，應同時進行相關觀眾調查及研究，並將觀眾的需求及喜好納入展示之中

本次考察的 3 所兒童博物館與我們分享各館常設展的展示發展過程及策略，如何從主題的發想到展示製作、開幕，根據各館的分享，整個期程會需要 2-7 年的時間。無論展覽的主題為何，在展覽的策劃過程中，前面的幾年，會進行大量研究，同時進行相關的觀眾調查，了解觀眾對主題的想法、認知、需求等；在展覽正式進入製作前，會進行原型測試，確保館方的策展內容對觀眾是有效的；展覽開幕後，在資源充裕的條件下，還會進行補救評估，移除或優化無效的展示內容。無論透過什麼樣的形式，展覽都必須將觀眾的反饋納入，館方才能達到有效的溝通。特別是以兒童為對象的展覽，往往策展人（大人）無法真正了解觀眾（兒童、家庭）的想法及需求，

[16] ACM Information Brief on the Power of Play - Association of Children's Museums Association of Children's Museums (childrensmuseums.org)

而設計出許多單向輸出，無法讓觀眾共鳴的展示內容。因此建議本館展示規劃過程中，應將觀眾研究納入重點，藉以真正了解兒童、家庭觀眾的需求與偏好。

（五） 建議本館未來的組織人力編制，應側重教育人員的編制，並建立專業社群連結

綜觀本次考察的 3 所兒童博物館可以發現，兒童博物館與傳統博物館不同，典藏與研究部門屬於相對較小的部門組織，甚至可能沒有，而教育人員部門會是兒童博物館最大的部門，無論使用的名稱為何，如輔導員（facilitator）、解說員（interpreter）、教育人員 （educator）等，這些人力在國內屬於廣義的教育人員，而因應兒童博物館的經營方式需要仰賴大量的教育人員，建議本館未來在組織編制上應側重教育人員的比例。此外，BCM 提供了一個很好的借鏡，因應多數兒童博物館並沒有龐大的研究人員組織，BCM 很早就開始與在地的學術組織進行跨界的結盟研究，並與地方的其他博物館進行社群連結進行資源互惠，而 ACM 也長期致力於推動兒童博物館的專業資源串聯。因此建議本館／籌備處應盡快與其他組織／單位建立專業社群連結，以利相關資源整併；另建議盡快加入國際兒童博物館社群，即時掌握兒童博物館的發展趨勢。

（六） 建議本館應將教育理論納入本館論述核心，並審慎評估是否進行典藏

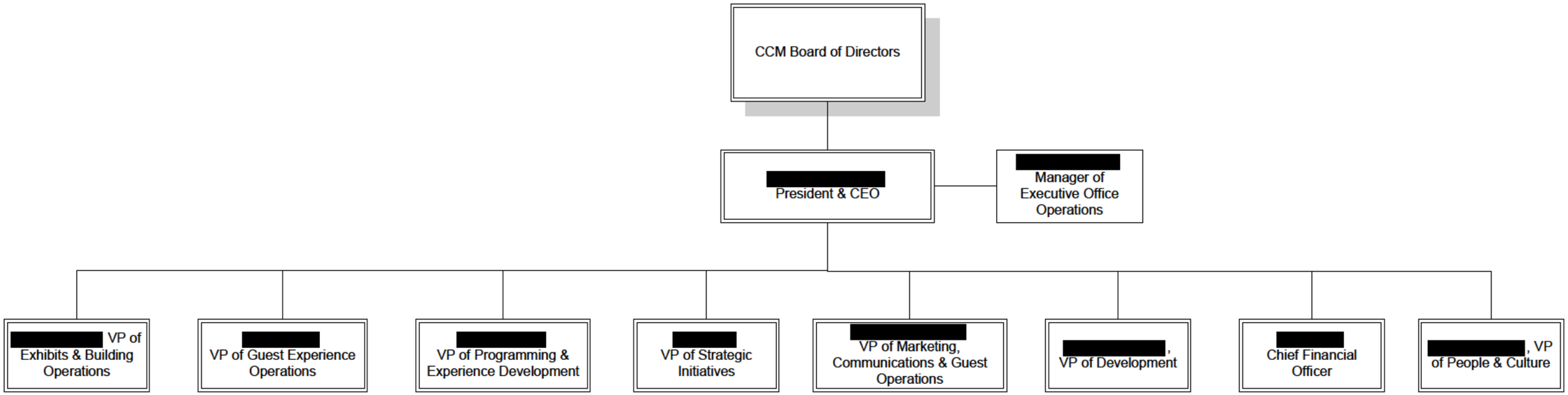
本次考察與 3 所兒童博物館館進行交流，無論在談論博物館使命、展示、教育甚至典藏等議題時，各館所皆使用相應的教育理論作為論述的基礎，最常被討論的包括遊戲學習 （Learning through Play, Play-Based Learning, Gamed-Based Learning）、探究式學習(Inquiry-Based Learning) 、Loose Parts Play、STEAM 等。而 CMI 與其他館所較為不同，他們強調以物件為基礎的 Object-Based Learning、Family Learning，在這樣的學習理論下，透過館藏及物件達到家庭學習的目的，成為館所的特色之一，而這使得典藏得以服膺館所的理念，真正有效的發揮它的作用。因此建議本館應將教育理論納入本館展示、願景、使命、目標等論述核心，並依據本館的展示教育目標，審慎評估是否進行典藏，避免為了典藏而典藏的悖論。

（七） 建議本館空間預留沉浸式、多媒體策展的場域

這次訪查 GMSI 的兩個最新沉浸式展覽，更深刻的體悟，透過科技技術的輔助，可以達到更深刻、更具互動性的觀展體驗，同時透過多媒體及肢體偵測等技術，可以加強聲音、視覺、觸覺及肢體的多感官觀展體驗，讓觀眾尤其兒童，更容易理解展覽中的抽象概念。儘管科技並非兒童博物館中最為推崇的策展方式，然而隨著科技的進步，展覽的方式已變得越來越多元，科技的介入更是目前新型態的展覽趨勢，鑒於國家兒童未來館預計在 6 年後開館，建議本館空間應將沉浸式、多媒體策展納入其中。

（八） 建議本館硬體空間規劃必須視兒童博物館之特性進行設計，並保留部分彈性使用空間

依據本次考察上述幾點觀察，建議於本館建築設計規劃時納入考量：1. CCM 及 BCM 的大型攀爬設施因高度跨越 2 樓層，需要較大的量體空間，因此整個攀爬設施需要與場館建築界面配合；2.因應兒童博物館未來需要辦理高頻率的活動，如夏令營、節慶活動、課程活動、生日派對等，建議預留彈性使用的集會／休息空間；3.工作坊或幼兒遊戲室等空間，須納入其展示物件、備品、教材等之儲藏空間，建議前述之空間或相似機能之空間，應預留合理之後場儲藏空間。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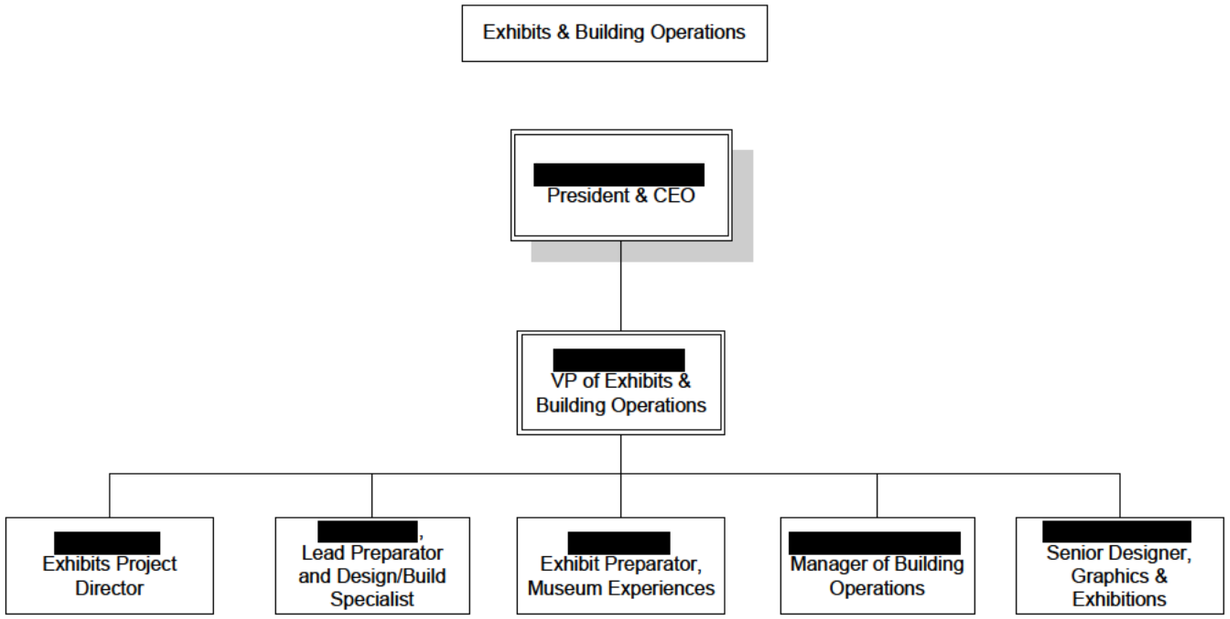
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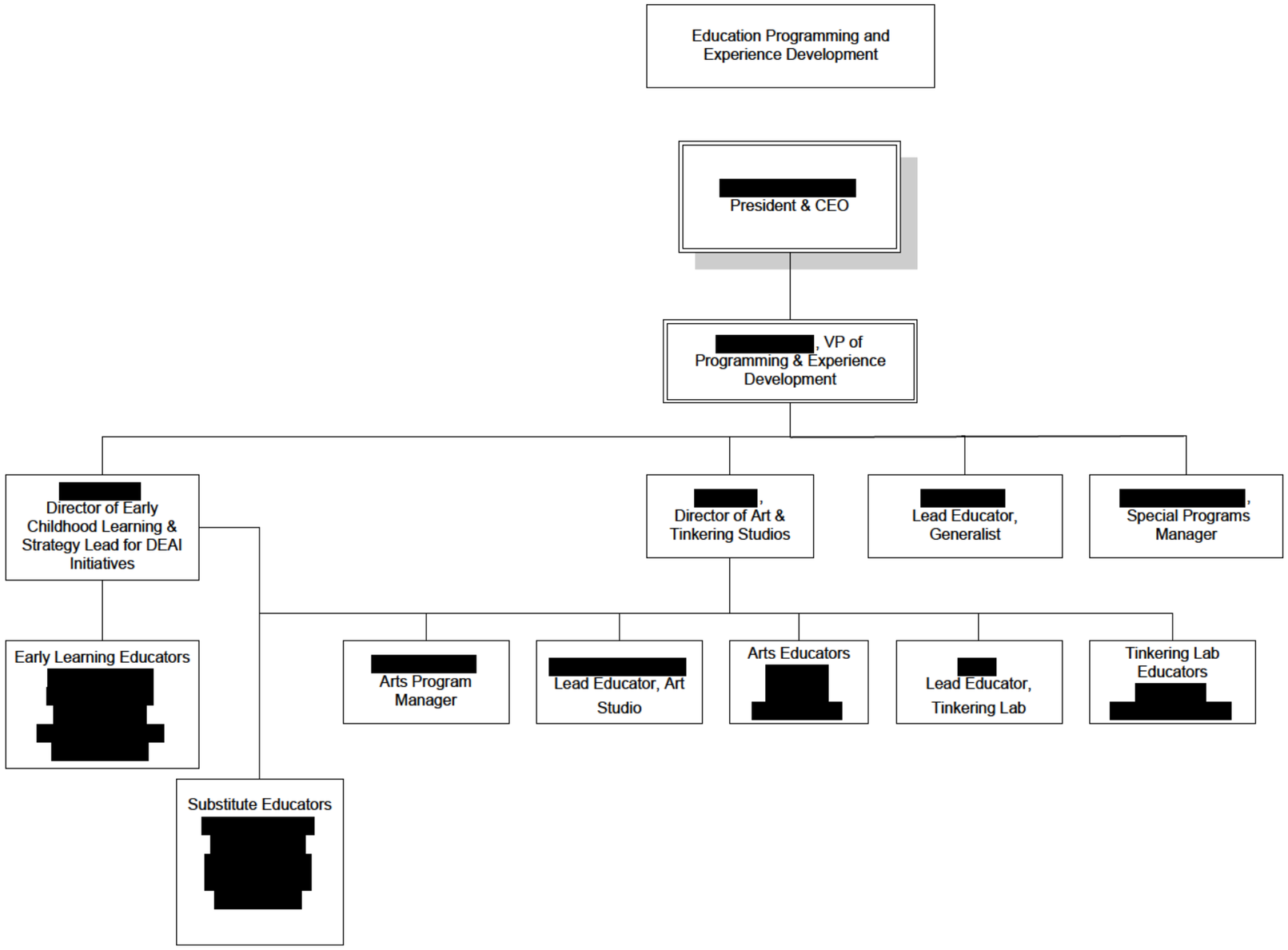
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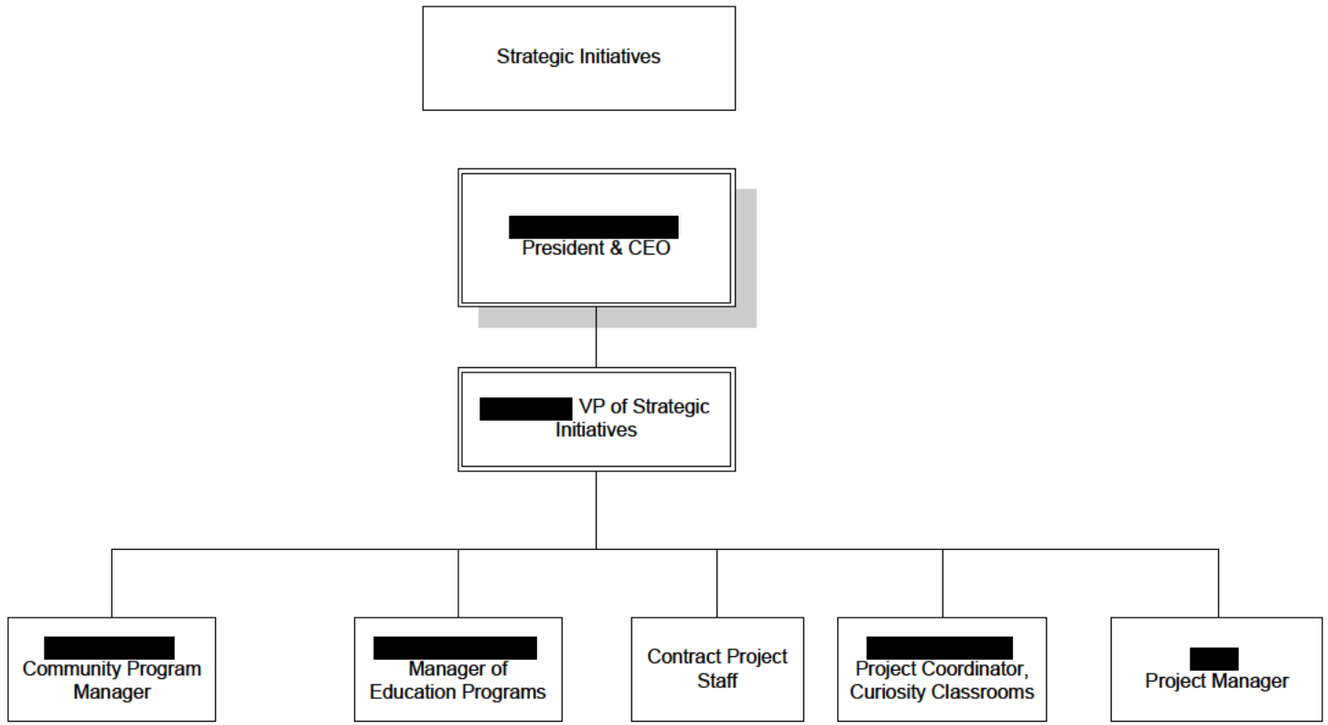
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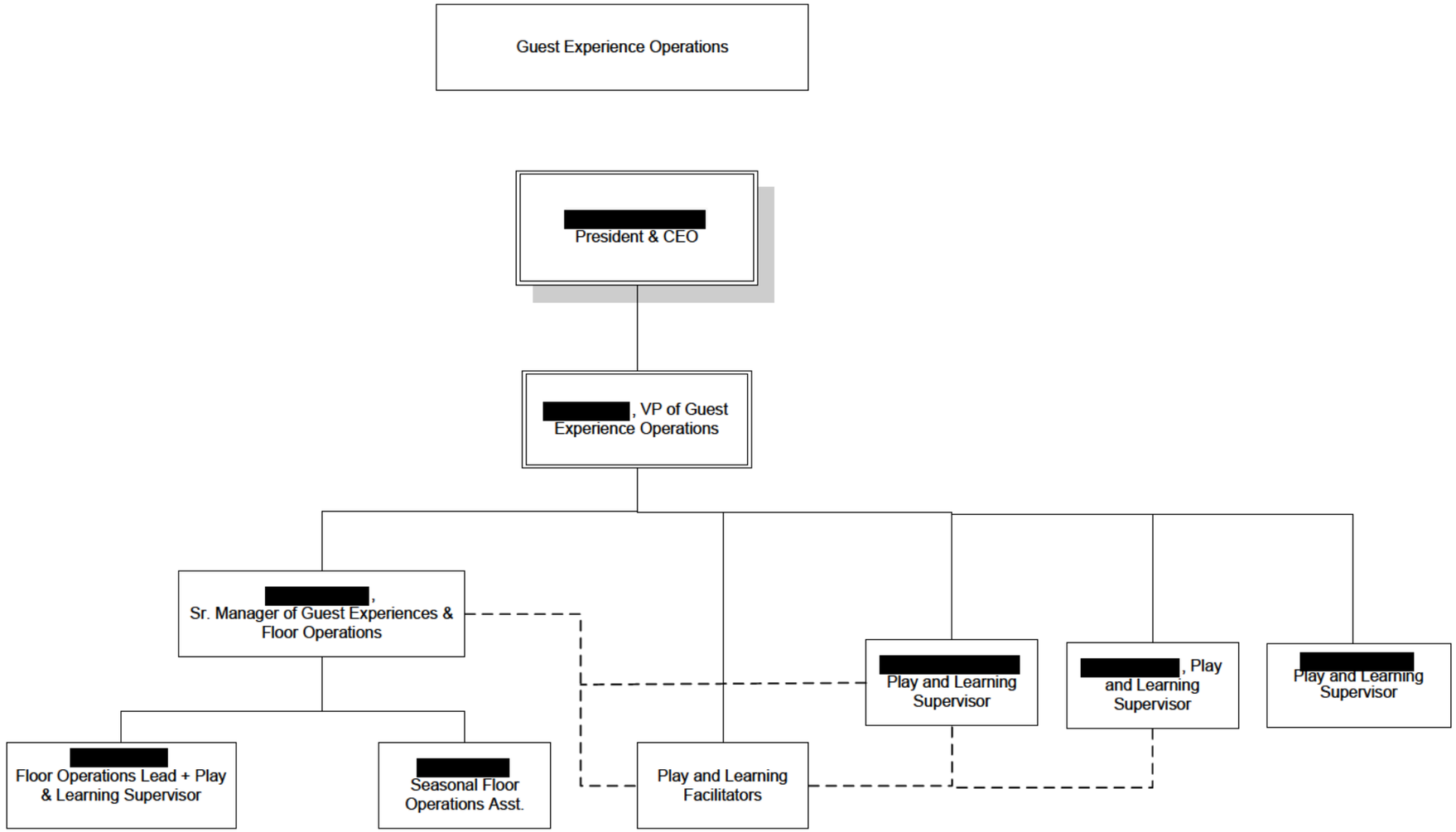
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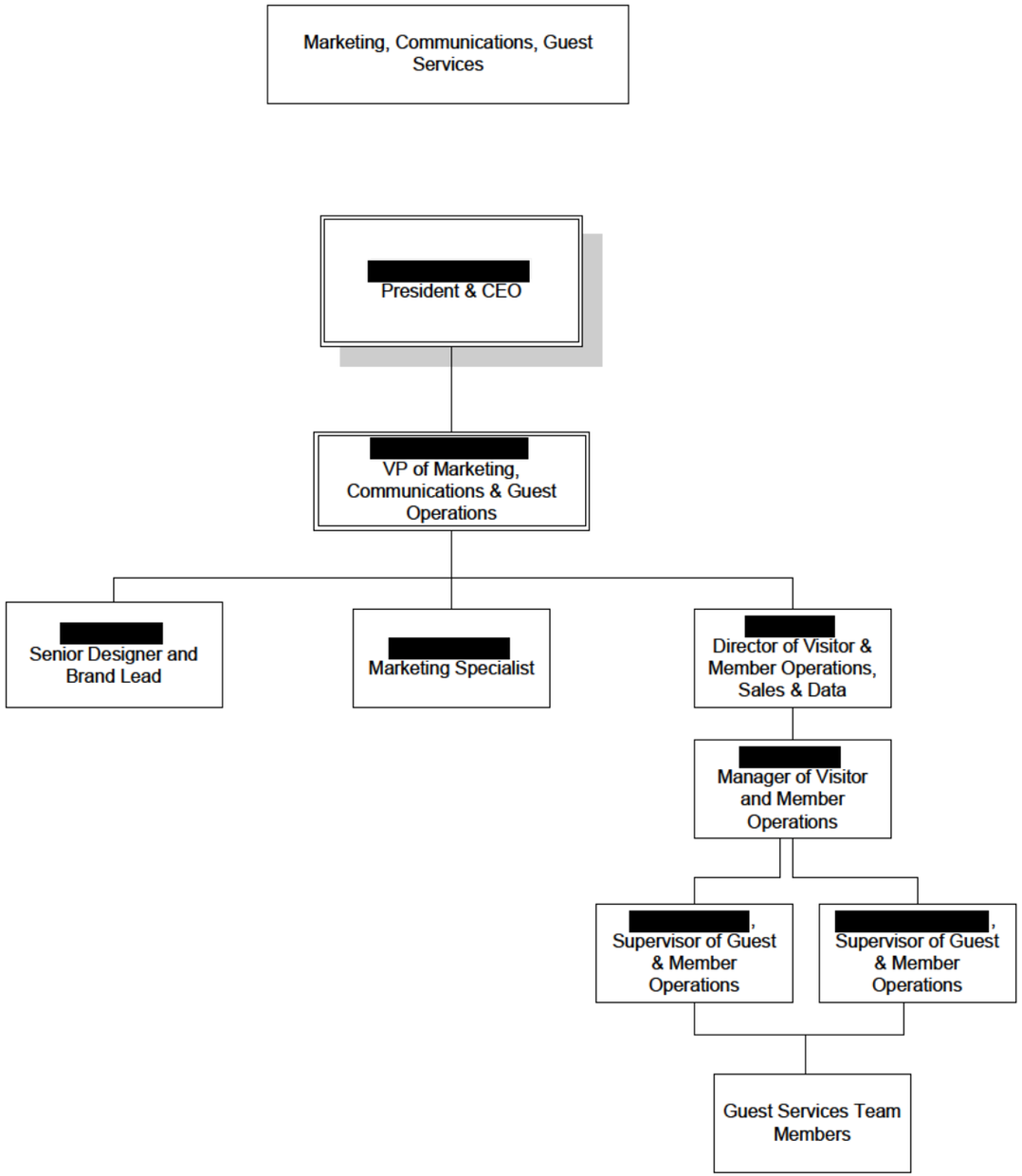
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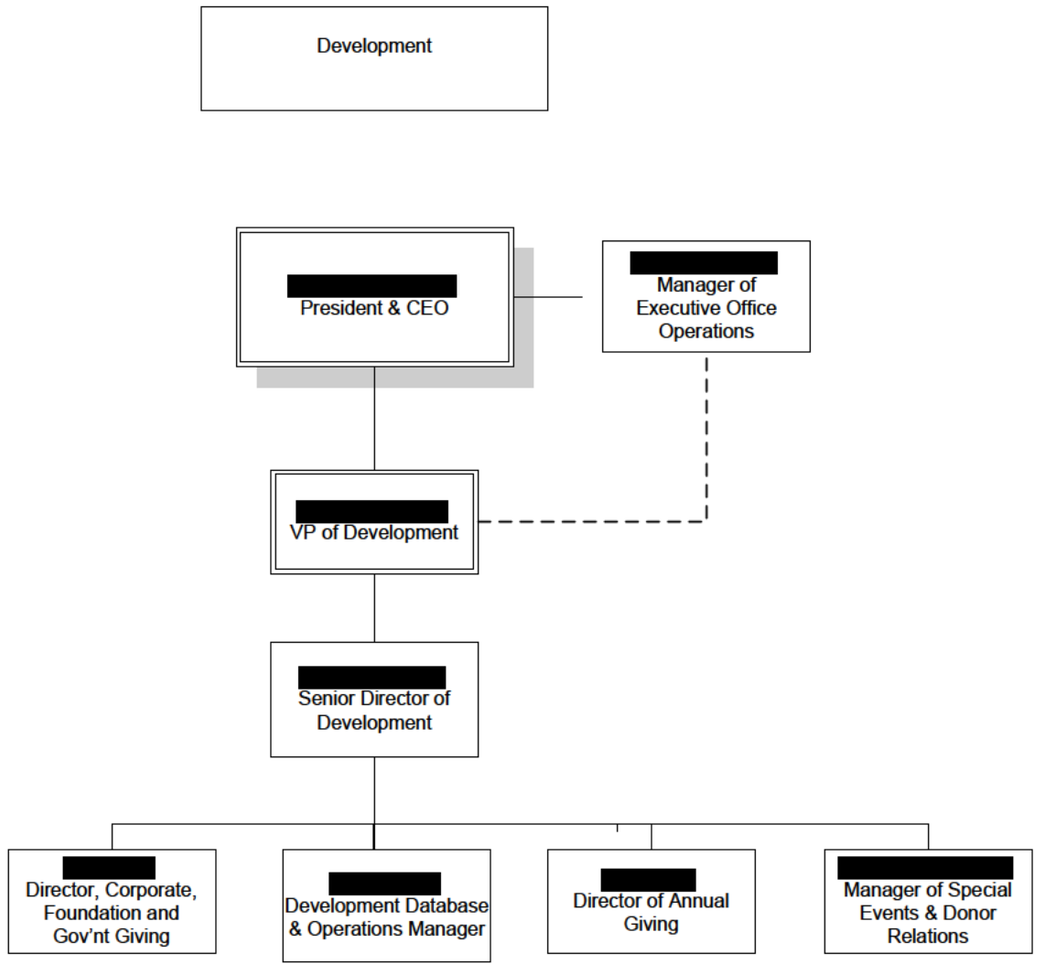
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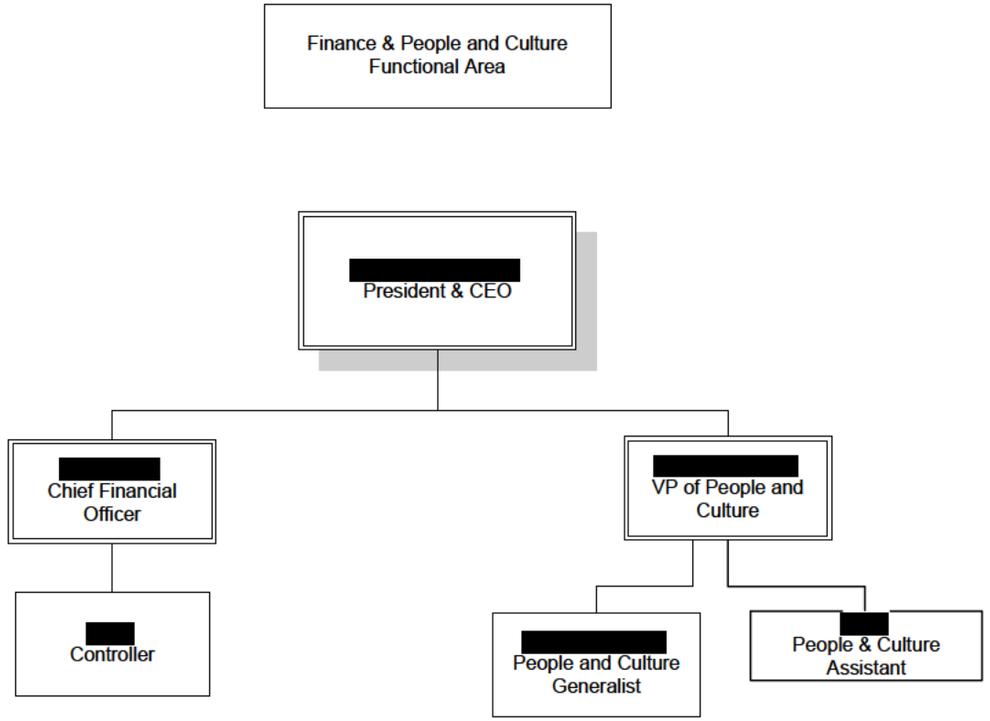
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SUPPORTING *Learning* THROUGH *Play*

AT CHICAGO CHILDREN'S MUSEUM

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Supporting Learning Through Play at Chicago Children's Museum

Welcome to Chicago Children's Museum (CCM)! The museum's mission is to improve children's lives by creating a community where play and learning connect. We hope you enjoy experiencing the museum and seeing firsthand the learning that occurs through play. All of CCM's experiences have been intentionally designed to give children opportunities to grow in the realms of cognitive, physical, social-emotional and language development.

The following guide will help you, as an important adult in a child's life, understand the opportunities for growth and development in each experience and how to support children's learning through play.

Cloud Buster

About This Experience

Designed by artist, Kevin Winters, *Cloud Buster* is 37 climbable feet of structural steel, wood, wire, rope, acrylic, fiberglass, and artificial turf perched over Navy Pier's Fifth Third Family Pavilion. Visitors can explore multiple levels, climb through unexpected spaces, and ascend to The Apartment, *Cloud Buster*'s highest destination. There is no one-way to explore Cloud Buster. Each pathway offers a new adventure!

Opportunities for Growth and Development

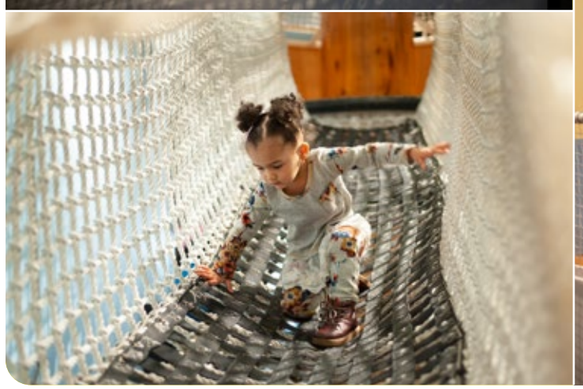
Through this experience, children have the opportunity to grow skills in the following areas.

- **Cognitive Development**: Practice reversibility (the idea that actions or thoughts can go in a different direction than usual) as they move in all directions through the structure; solve problems *(How can I get over there? How can I navigate this terrain?)*; and sequentially plan each step of their climb.
- **Social-Emotional Development**:
  - **Self-Awareness and Identity Building**: Build self-confidence as they reach new heights, test their physical abilities, and sense their accomplishments.
  - **Pro-Social Development**: Bond with others through the shared climbing experience and develop empathy for other climbers.
  - **Independence**: Exercise decision-making and following through, while also boosting logic, memory, and concentration as they decide how to climb the structure and navigate from place to place.
- **Physical Development**: Use upper body strength to ascend, and balance to descend. Practice a wide range of vertical and horizontal climbing methods.
- **Language and Literacy**: Engage in play narratives with their peers, develop and tell stories inspired by the climbing adventure and setting, and gain new vocabulary such as directional terms *(i.e. up, down, across, left, right, over, under).*

HOW ADULTS CAN SUPPORT PLAYFUL LEARNING IN CLOUD BUSTER

- Follow the child's lead: Do they want to climb with you or explore independently? Let them make the decisions about which paths to take.
- If the child is apprehensive at first, invite them to explore just the lower levels of the climber at first. They can visually assess challenges and decide how far to go.
- Note that Cloud Buster is especially suited for older children who might be looking for a challenging (and thrilling!) physical experience. Suggest this experience if you have a child looking for an adventure.

Kovler Family Climbing Schooner



About This Experience

Through this nautical-themed climbing experience, visitors can scale three stories of ship's rigging—from cargo hold to crow's nest. Staff stationed at each level can lend a hand to new climbers.

Opportunities for Growth and Development

Through this experience, children have the opportunity to grow skills in the following areas.

- **Cognitive Development**: Improve core cognitive functions like memory and concentration. *(Where should I put my foot next? How should I use my hands? What positioning worked last time?)*
- **Social-Emotional Development**:
  - **Self-Awareness and Identity Building**: Experience a feeling of accomplishment and self-confidence as they reach new heights and traverse physically challenging spaces.
  - **Pro-Social Development**: Use social and cooperative skills as they navigate the space with other climbers.
  - **Independence**: Separate momentarily from their caregivers to climb. Practice goal-setting: *I am aiming to reach the top of the schooner*; determination: *This is hard but I will get there!*; and planning: *If I place my foot here while pulling up with my hands and arms, I'll be able to move up to the next section.*
- **Physical Development**: Build awareness of their body's position and movement in the space; strengthen balance and agility as they navigate varying inclines, levels, and distances between platforms.
- **Language and Literacy**: Use spoken words to be clear when giving instructions to, or communicating with, other climbers or staff helpers.

HOW ADULTS CAN SUPPORT PLAYFUL LEARNING IN THE CLIMBING SCHOONER

- Encourage and guide the child as you watch them climb. Be specific with your feedback: *Wow, you are really using your strength to pull yourself up!*
- Offer verbal cues as well as physical cues. *You can put your foot here and grab the rope here with your hands*. [Point to the areas].
- You can follow the child as they climb while remaining outside the structure yourself by taking the staircase that runs adjacent to the climbing structure. Maintain conversation with them while they climb.
- Show empathy and understanding if children feel scared or realize they are not ready to climb all the way to the top. Let them know that they can always try again on your next visit.

Treehouse Trails

About This Experience

In this outdoor-inspired exhibit, visitors can camp, climb, burrow, and pretend. They can canoe and fish in a river, splash in a mountain waterfall, climb through a rock tunnel, and cook and serve a meal in the log cabin. Babies can stretch, explore, and relax in the special infant crawler area.

Opportunities for Growth and Development

Through this experience, children have the opportunity to grow skills in the following areas.

- **Cognitive Development**: Hone their imagination as they play out different roles; solve problems that arise as they play out narratives inspired by the setting; learn to self-regulate as they interact in the space and with others; and make decisions about what to do next.
- **Social-Emotional Development**:
  - **Self-Awareness and Identity Building**: Explore different identities and abilities as they take on various roles. Develop a sense of judgement about their own abilities and boundaries as they interact in the space.
  - **Pro-Social Development**: Interact with others to share materials in the log cabin, collaborate in the ball run area, and negotiate space at the fishing creek.
  - **Independence**: Gain a sense of freedom and confidence as they explore the space and assess risks.
- **Physical Development**: Build gross motor skills as they climb, crawl, slide. Develop eye-hand coordination by manipulating the loose parts in the exhibit.
- **Language and Literacy**: Engage in conversation with others as they play our scenes, share ideas, navigate the space, and negotiate actions. Use vocabulary words in context.

HOW ADULTS CAN SUPPORT PLAYFUL LEARNING IN TREEHOUSE TRAILS

- Follow the child's lead if they are drawn to a particular area or activity. Take cues from them on how they want you to join in on the play: Eat a meal they're serving in the log cabin? Fish together in the creek?
- Identify words that are specific to the play setting. Use the vocabulary while taking the role of co-player or play leader. *Let's go over the bridge and catch some fish in the blue river!*
- Talk about whether the setting reminds them of any places they've been or things they've done. *Have you ever gone for a walk in the woods? Seen a real fish swimming? Worn a life jacket? Ridden in a boat?*

Play It Safe

About This Experience

Developed in partnership with the Chicago Fire Department, *Play It Safe* invites children to learn fire safety skills as they try on authentic firefighter gear, slide down the fire station pole, drive the truck, put out the "fire," and safely escape a "smoke"-filled room.

Opportunities for Growth and Development

Through this experience, children have the opportunity to grow skills in the following areas.

- **Cognitive Development**: Make sense of information, either by comparing it to what they already know or changing their thinking to match the new information, as they explore the operations of a firehouse, and what to do if they encounter smoke or fire.
- **Social-Emotional Development**:
  - **Self-Awareness and Identity Building**: Learn how to manage emotions and self-regulate as they play out the narrative of an emergency situation. Try on adult roles such as firefighter/first responder.
  - **Pro-Social Development**: Practice skills of how to interact, collaborate, and problem solve with others as they work together to manage an "emergency."
  - **Independence**: Learn self-control and decision-making as they choose which role to play in the firehouse, or how to escape the smoke-filled room.
- **Physical Development**: Build spatial reasoning skills as they figure out how to slide down the fire pole, climb in and out of the firetruck, and "get low and go" out of the smoke-filled room.
- **Language and Literacy**: Practice vocabulary words in context as they play out a narrative, communicate with others, and use words to describe their ideas, intentions, and actions.

HOW ADULTS CAN SUPPORT PLAYFUL LEARNING IN PLAY IT SAFE

- If you have a shy child, join them in their role playing. Take more of a lead role.
- Talk about the smoke-filled room together. Model the safe way to exit the smoke-filled room (get down on your hands and knees, keep your head up, and crawl outside).
- Assist the child in sliding down the fire pole.
- Note that some children will want to stay at the firetruck for a long time! Support their desire to stay. Remember that this means they are still learning and gaining something from the experience.

Kids Town

About This Experience

In this cityscape built just for children, visitors can shop in the grocery store, change a tire, deliver the mail, wash the car, and drive a CTA bus. This city neighborhood promotes role-playing, problem-solving, emerging literacy, and creative exploration.

Opportunities for Growth and Development

Through this experience, children have the opportunity to grow skills in the following areas.

- **Cognitive Development**: Develop short- and long-term goals as they decide where and how to play within the environment. Build capacity to use abstract thought as they imagine, create, and represent ideas by using the props and environment. Make connections between prior experiences and their present play.
- **Social-Emotional Development**:
  - **Self-Awareness and Identity Building**: Take on roles normally played by adults (bus driver, mail carrier, cashier, mechanic, cook, etc.) and practice the actions and "scripts" of those roles.
  - **Pro-Social Development**: Learn to see from the perspectives of others as they follow the "rules of the role." Negotiate and collaborate with others as they play out scenes and narratives.
  - **Independence**: Make decisions about what and how they want to play; take the lead in certain scenarios or while playing a certain role.
- **Physical Development**: Build gross motor skills as they stretch to wash the car, push a grocery cart, navigate the terrain of the exhibit, climb in and out of the driver's seat. Hone fine motor skills as they collect small objects in the grocery store, handle mail and currency, and use buttons on the cash register.
- **Language and Literacy**: Engage in conversation with others as they role play, share ideas, navigate the space, and negotiate actions. Use vocabulary words in context.

HOW ADULTS CAN SUPPORT PLAYFUL LEARNING IN KIDS TOWN

- Take cues from the child on how they want you to join their play: Ride in the bus as they drive? Purchase groceries as they work the cash register? In each scenario, help carry the scene forward and expand conversation. *What's the next stop, bus driver? What's on sale at the store today, grocer?*
- Use specific vocabulary while taking the role of co-player or play leader. *Let's wash the car! Let's use the soft brush to scrub the hood of this blue car.*
- Note that some items in the grocery store are non-descript (small wooden blocks and blank containers). Ask the child what the item could be, allowing them to stretch their imagination and tap into their own knowledge of familiar or favorite food items that may not otherwise be represented in the store.

Suchomimus

About This Experience

Visitors can greet a life-size skeleton of the dinosaur, Suchomimus, as soon as they enter the museum. Signage helps visitors learn about where Suchomimus lived, what they ate, and how they lived. A replica jaw bone fossil allows visitors to touch a part of the dinosaur's skeleton.

Opportunities for Growth and Development

Through this experience, children have the opportunity to grow skills in the following areas.

- **Cognitive Development**: Improve attention and enhance complex thinking skills as they observe a specimen and tune into information about a scientific topic. Build ability to visualize and imagine how something was in the past.
- **Social-Emotional Development**:
  - **Self-Awareness and Identity Building**: Enhance their perseverance and persistence as they engage in learning about (or discovering) a topic of personal interest.
  - **Pro-Social Development**: Engage in positive interactions with caregivers and other children as they look at and talk about the dinosaur.
  - **Independence**: Develop critical thinking as they think about the dinosaur, ask questions, and develop their own curiosities.
- **Physical Development**: Build fine motor skills as they touch and feel the fossil jaw bone; build gross motor skills by pretending to move and act like a dinosaur.
- **Language and Literacy**: Use known and new vocabulary to talk about the dinosaur; learn and use descriptive words to describe what they see.

HOW ADULTS CAN SUPPORT PLAYFUL LEARNING WITH SUCHOMIMUS

- Note that Suchomimus is the same dinosaur featured in the museum's *Dinosaur Expedition* exhibit on Floor 3. Invite children to continue learning about Suchomimus by visiting the exhibit and digging for bones.
- Explore the touchable jaw bone together. Ask children to compare Suchomimus's teeth to their own. *What can the shape of Suchomimus's teeth tell us about the kind of food he might have eaten?* Describe the fossil by talking about its shape, size, color, and texture.
- Talk about things you can't see right now, like what the dinosaur might have done when it was alive. *How do you think it moved? What did it sound like?*

Pritzker Playspace

About This Experience

The *Pritzker Playspace* is an intentionally-designed environment that supports multi-sensory exploration and play for infants, toddlers and preschoolers. Materials and elements of the environment change regularly to offer new and evolving experiences. It is a great place to meet other families, get inspired, and play!

Opportunities for Growth and Development

Through this experience, children have the opportunity to grow skills in the following areas.

- **Cognitive Development**: Use all senses to explore objects and phenomenon and make sense of the world around them.
- **Social-Emotional Development**:
  - **Self-Awareness and Identity Building**: Build their self-awareness and self-confidence as they encounter new challenges and new materials, and gain confidence in their abilities.
  - **Pro-Social Development**: Develop social competencies as they interact with others, and begin to share, negotiate, and self-regulate.
  - **Independence**: Explore on their own (distancing themselves from caregiver) as they feel comfortable. Express their emotions and begin to show or receive empathy as they interact with others.
- **Physical Development**: Build strength and balance by toddling, riding, pulling, pushing, lifting, rocking and climbing. Coordinate movements, gain awareness of their bodies, and build spatial awareness as they navigate the space.
- **Language and Literacy**: Build receptive language as they hear others speak and have the opportunity to use expressive language as they communicate with themselves (private speech) and with others.

HOW ADULTS CAN SUPPORT PLAYFUL LEARNING IN THE PRITZKER PLAYSPACE

- Engage with the child by showing them the materials and modeling different ways to use them.
- Follow the child's lead if they show interest in a particular activity and play with them. Otherwise, initiate an activity. *Let's scoop these beans. Let's stack these blocks. Let's play with the objects on the light table.*
- Narrate the child's experience. *I see that you just put the ball in the basket!*
- Ask open-ended questions. *What do you think will happen if...? What do you want to do next?*

Dinosaur Expedition



About This Experience

This exhibit is a re-creation of the real Saharan expedition site where Chicago paleontologist, Paul Sereno, discovered a new type of dinosaur. Visitors can see a life-size skeleton of Suchomimus *(sue-co-MY-muss)*, dig for bones in the excavation pit, compare skulls with a T-Rex, and learn what it would be like to be part of the expedition team.

Opportunities for Growth and Development

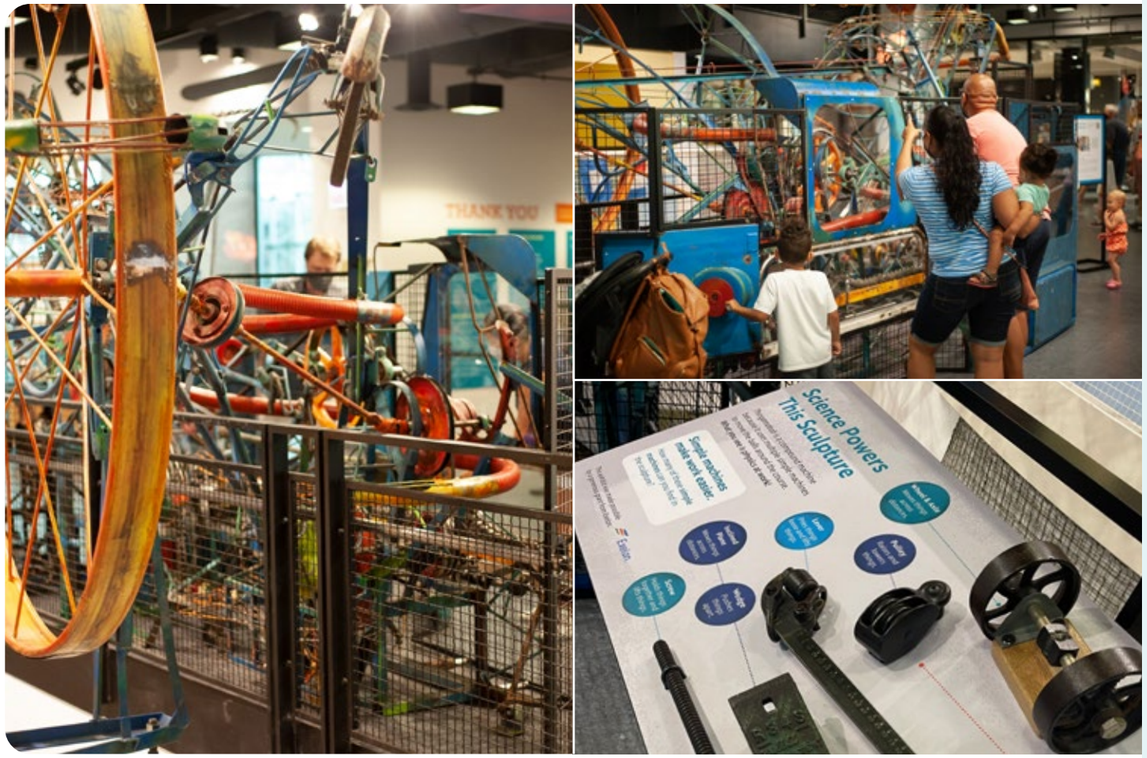
Through this experience, children have the opportunity to grow skills in the following areas.

- **Cognitive Development**: Use the scientific method (observing, describing and comparing) to make connections between dinosaur evidence and dinosaur knowledge.
- **Social-Emotional Development**:
  - **Self-Awareness and Identity Building**: Enhance perseverance and persistence and they seek to gain more knowledge about a topic of personal interest.
  - **Pro-Social Development**: Engage in positive interactions with other children as they work together in the excavation site and drive the truck.
  - **Independence**: Develop critical thinking, ask questions, and look for answers on their own as they excavate the bones and determine which part of the dinosaur they have found.
- **Physical Development**: Engage in effective and efficient use of large muscles to navigate the dig site terrain and dig for bones. Use fine motor skills to manipulate the dig tools such as brushes.
- **Language and Literacy**: Talk with others to communicate actions and ideas and ask questions. Utilize new vocabulary in context such as for parts of the skeleton, environment, materials, tools, and types of fossils.

HOW ADULTS CAN SUPPORT PLAYFUL LEARNING IN DINOSAUR EXPEDITION

- Talk with the child to imagine what a trip to the Sahara to dig for dinosaur bones might be like. *If you were going to look for dinosaur bones in the hot desert, what supplies would you bring?* Use the inventory list in the Jeep as a reference.
- Work together to unearth the skeleton in the dig site. Talk about the bones you are finding. *What part of the dinosaur do you think you have found? A rib bone? A claw?* Use the skeleton map as a reference.
- Touch and look at the T-Rex skull and the Suchomimus skull. Talk about what is similar and different.

Thingamabob



About This Experience

Artist Andrew Smith created this sculpture using repurposed machine parts and other materials to demonstrate how simple machines work. Visitors can activate *Thingamabob* by turning the crank and setting the machine in motion. The activation sends a number of billiard balls through the course. Watch as simple machines work together!

Opportunities for Growth and Development

Through this experience, children have the opportunity to grow skills in the following areas.

- **Cognitive Development**: Deepen understanding of physical science and mechanics. Observe how simple machines work.
- **Social-Emotional Development**:
  - **Self-Awareness and Identity Building**: Learn about the artist who created Thingamabob and think about themselves as artists and makers. *Do they make art? What materials would they like to work with? What could they imagine creating?*
  - **Pro-Social Development**: Talk with others about the parts of the machine they see; work together to find each of the 5 simple machines.
  - **Independence**: Experience the power of making the machine work by themselves. Turn the crank and see what their own strength can do!
- **Physical Development**: Use hands (fine motor skills) and strength (gross motor skills) to turn the crank and get the machine's gears turning.
- **Language and Literacy**: Talk with others about what they are observing. Learn and apply scientific vocabulary in context (e.g. the names of all the simple machines).

HOW ADULTS CAN SUPPORT PLAYFUL LEARNING IN THINGAMABOB

- Visit the simple machine signage and look at the 5 simple machines. Try to find each of the machines at work in Thingamabob. *How are each of the machines making the work easier?*
- Talk together about the materials the artist used to make the sculpture. *What interesting parts do you see? What materials would you like to use to make a sculpture? What would your sculpture look like?*
- If the crank is hard for the child to turn by themselves, work together to turn it!

Art Studio

About This Experience

The *Art Studio* is designed to let children revel in the creative process. Internationally-renowned, Chicago-born artist, Hebru Brantley, partnered with Chicago Children's Museum to design the space. ***Kirby's Clubhouse*** is an immersive environment that offers children the opportunity to tell their own stories and display their own art. Visitors can add their own "story frame" to the growing, collaborative art work inspired by comic books, some of Hebru Brantley's early artistic influences. ***Sky Studio*** houses the museum's facilitated art programming, led by the museum's arts educators. Workshops offer opportunities for families to explore a diversity of art forms, processes, styles, approaches, and artists.

Opportunities for Growth and Development

Through this experience, children have the opportunity to grow skills in the following areas.

- **Cognitive Development**: Understand multi-part artistic processes, including how to use materials, tools, and techniques to create different art forms.
- **Social-Emotional Development**:
  - **Self-Awareness and Identity Building**: Use art-making to express ideas, interests and identities.
  - **Pro-Social Development**: Work with others during the process of art-making by sharing materials and tools. Experience the power of sharing their work with others by talking about it with friends and family or the museum educator, and/or by displaying it in the museum for others to see.
  - **Independence**: Turn their own ideas into an artistic expression; express their own voice and vision through use of artistic media.
- **Physical Development**: Use fine motor skills to manipulate tools and materials.
- **Language and Literacy**: Learn and apply new vocabulary in context, such as terms for artistic materials, techniques or tools. Talk with others about the process of creating and one's work.

HOW ADULTS CAN SUPPORT PLAYFUL LEARNING IN THE ART STUDIO

- Talk with the child about their ideas and creations. Use open-ended language such as, *"Tell me about your creation."* Don't make assumptions about what the child has created.
- When possible, use art-making as an in-road to talking with the child about prior experiences or interests related to what they are creating. Art is a great conversation-starter as it allows children to express themselves in ways that their language skills may not yet allow.
- If the child gets frustrated during the art-making process, note that sometimes things don't work the way you expect when making art. *How can we take the "surprise" and turn it into something interesting?*

Michael's Museum

About This Experience

This exhibit fosters the art of collecting and features nearly 100 collections of tiny objects, including miniatures, trinkets, artifacts, and curiosities donated by founder and curator Michael Horvich. Children can ask questions and tell stories as they seek-and-find objects in the collection, use magnify glasses to gain new perspectives, sort and organize tiny treasures, and act as "curators" of their own displays on open shelves.

Opportunities for Growth and Development

Through this experience, children have the opportunity to grow skills in the following areas.

- **Cognitive Development**: Deepen understanding of the qualities and characteristics of objects and materials (color, shape, size, content); sort materials into categories.
- **Social-Emotional Development**:
  - **Self-Awareness and Identity Building**: Think about one's own interests: *Are they a collector of anything? What would they like to collect?* Try on the role of curator and make decisions.
  - **Pro-Social Development**: Talk with others about the objects they see in the collection. *Do any objects look familiar? Do any of the objects remind them of an experience they had?*
  - **Independence**: Point out their own favorite items in the collection. Describe what they like about them. Curate their own object display by using the loose parts to populate empty display shelves.
- **Physical Development**: Use fine motor skills to manipulate the small loose parts, place them in slots or compartments; open and close drawers; crouch down low to see small objects in cases; reach up high to place objects on display shelf.
- **Language and Literacy**: Talk with others about what they see. Use language to describe the qualities and characteristics of the items; tell stories and share memories elicited by the objects.

HOW ADULTS CAN SUPPORT PLAYFUL LEARNING IN MICHAEL'S MUSEUM

- Use the seek-and-find card by the coffee table and look together for the prompted items.
- Invite the child to take some time to go around the exhibit (separately from you) and find three things that they want to show you. You do the same. Come back together and share your discoveries. *Why did you choose this item? What was interesting about it to you? Why did you think I would find it interesting?*
- This exhibit has objects from many decades! If an item is something you played with as a child, tell the child about it! Talking about memories is a rich form of conversation.

Water City

About This Experience

This exhibit gives children the opportunity to manipulate a child-scaled model of Chicago by directing the flow of water through the river system, exploring cause-and-effect as they use water to create effects on the buildings, and experiencing the sensory qualities of water.

Opportunities for Growth and Development

Through this experience, children have the opportunity to grow skills in the following areas.

- **Cognitive Development**: Deepen understanding of the qualities of water. Explore how water flows, how objects sink or float, how water can be directed, as well as the importance of water to our lives.
- **Social-Emotional Development**:
  - **Self-Awareness and Identity Building**: Explore their own capability and power to direct the flow of water and create effects. Develop their own narratives and stories using the scaled-model city and the props, and take on different roles.
  - **Pro-Social Development**: Work with others while using the components, props, and activities.
  - **Independence**: Choose which activities to try. Direct their own experience and interact with the water according to their own interests. Direct the water and create effects of their own.
- **Physical Development**: Use fine motor skills to manipulate the sprayers and props such as scoops and strainers. Use strength (gross motor skills) to move water. Experience the calming nature of water as a sensory material.
- **Language and Literacy**: Use language to talk about their actions, the props, materials, and elements of the city scene. Together with an adult, talk about the signage that gives info about the importance of water.

HOW ADULTS CAN SUPPORT PLAYFUL LEARNING IN WATER CITY

- Look around at the cityscape together. Ask children: *What part do you want to explore first?*
- Talk about the buildings and structures you see: *Do any of these structures look familiar to you?* Use the sign showing Chicago buildings as a reference.
- As you are playing in the water, think together about all the words you'd use to describe it. *Cool, smooth, shimmery, soft, clear…? What words describe how water makes you feel? Calm, excited, cool, thirsty…?*
- Ask "What if" questions: *What do you think will happen if we direct the water sprayer at those spinners on the building? What would happen if we open up the dam?* Then test it and see what happens!

Skyline

About This Experience

The *Skyline* exhibit invites visitors to design and build a child-sized skyscraper using struts, nuts and bolts and real tools. The *Skyscraper Challenge* component photographs visitors at work and invites them to tell the story and make a documentary about their building process.

Opportunities for Growth and Development

Through this experience, children have the opportunity to grow skills in the following areas.

- **Cognitive Development**: Deepen spatial and mathematical understanding through real life experiences with 3-D construction.
- **Social-Emotional Development**:
  - **Self-Awareness and Identity Building**: Share a sense of group and individual ownership and pride in their work as they build. Try on the roles of designer, engineer, builder.
  - **Pro-Social Development**: Collaborate with others to build large-scale structures that require cooperation and team work.
  - **Independence**: Monitor their own progress and set their own standards for success. Learn from and move past unsuccessful strategies in order to build something that stands up.
- **Physical Development**: Grasp, lift, move, and build with large size wooden struts. Develop eye-hand coordination as they line up bolts and nuts and use tools.
- **Language and Literacy**: Build language skills as they communicate during their building experience—dealing with the need for parts, tools, and hardware, talking about plans, sharing strategies, and reflecting on accomplishments. Use new vocabulary for tools and materials.

HOW ADULTS CAN SUPPORT PLAYFUL LEARNING IN SKYLINE

- Talk together about what you might build. Look around at other structures for inspiration.
- Use the labels in the exhibit to learn authentic terms for some of the construction tools and materials. Use the language: *Let's find struts in the length we need. We're going to need more nuts, bolts, and washers.*
- If the structure is wobbly, visit the "What Stops the Wobble?" component to learn an important tip. *What shape can you add to make your structure more stable?*
- Let the child lead the design and build process. Follow in on their vision.

Tinkering Lab

About This Experience

This facilitated workshop space invites visitors to use their building and problem-solving skills to address engineering challenges. In partnership with Loyola University Chicago and Northwestern University, museum educators and researchers are utilizing Tinkering Lab to study how children and families learn about engineering. Evolving programs in the space offer new experiences over time.

Opportunities for Growth and Development

Through this experience, children have the opportunity to grow skills in the following areas.

- **Cognitive Development**: Use critical thinking and problem-solving skills to solve engineering challenges. Test solutions and fix problems. Build executive function skills as they think through a process and determine what to do first, next and last.
- **Social-Emotional Development**:
  - **Self-Awareness and Identity Building**: Understand their capabilities and grow in confidence as they use tools and materials that may be new to them. See themselves as problem-solvers and scientific thinkers.
  - **Pro-Social Development**: Collaborate with others to build and solve problems. Share materials and tools. Share their creations with others.
  - **Independence**: Make their own decisions about what to create, how to solve a challenge, and what types of materials and tools to use.
- **Physical Development**: Build fine motor skills while working with a variety of hand tools.
- **Language and Literacy**: Build language skills as they describe their building process and tell stories related to their work. Gain new vocabulary related to engineering processes, tools, and materials.

HOW ADULTS CAN SUPPORT PLAYFUL LEARNING IN TINKERING LAB

- The facilitator in the space will provide a brief introduction to the challenge and activity of the day, as well as provide tips on how to begin.
- If children are still unsure of how to start, walk around the room with them and look at the available materials. Look at examples of what others have made or are working on. This can spark ideas!
- When it comes to constructing, follow the child's lead. What is their vision? How can you help? Try not to lead the building/making process *for* them.
- Engage the child in conversation while they are building. Is there a story that goes along with what they are making? Research shows that storytelling and reflection can deepen children's engineering learning.

Story Hub

About This Experience

In this multi-media station, visitors can tell the story of their museum visit. Children and their important adults produce a mini-movie about their experiences to share and revisit online after they leave the museum.

Opportunities for Growth and Development

Through this experience, children have the opportunity to grow skills in the following areas.

- **Cognitive Development**: Deepen their learning by recalling and reflecting on their experiences and making meaning of it.
- **Social-Emotional Development**:
  - **Self-Awareness and Identity Building**: Self-reflect on what they enjoyed and learned at the museum. Identify their favorite experiences and memories of the day.
  - **Pro-Social Development**: Engage in meaningful conversation with a caring adult about their experience. Think about others with whom they will want to share their movie.
  - **Independence**: Take the lead in speaking up and sharing their thoughts and reflections.
- **Physical Development**: Become aware of movements and body positioning during a video recording.
- **Language and Literacy**: Use verbal language to engage in conversation and to describe their thoughts and feelings.

HOW ADULTS CAN SUPPORT PLAYFUL LEARNING IN STORY HUB

- The *Story Hub* program (on-screen) facilitates adult-child interaction by giving prompts and helping adults to support the child's conversation and reflection. Follow the prompts on the screen together.
- After your museum visit, download and view the movie together and talk about it. *What were some of the most interesting moments from your movie? Were there any moments that made you smile or giggle upon watching it? Are there other memories from your museum visit that you want to talk about more?*
- Chat about whether there is anyone else with whom the child would want to share their recording. You can forward the e-mail link to them.

CHICAGO
CHILDREN'S
MUSEUM

AT NAVY PIER
700 East Grand Avenue
Chicago, Illinois

Interview question responses from Chicago Children's Museum (CCM)

Prepared in collaboration by Natalie Bortoli (Vice President of Educational Programming and Experience Development), Elena Lindstrom (Manager of Executive Office Operations), and Peter Williams (Vice President of Exhibits and Building Operations)

What are the most popular exhibitions/installations at CCM?

CCM's most popular area is *Water City*, our new water play exhibit which opened in 2023.

Some of our experiences have longer "dwell times," such as our spaces that offer facilitated programming like the *Art Studio* and the *Tinkering Lab* (which offer daily workshops), and *Pritzker Playspace* (our special area for infants, toddlers, and preschoolers, currently designed with the seasonal theme "Summer by the Lake").

Our exhibits offer varying modes of play for children across a wide span of ages, so different audiences are most allured to different spaces. For example, our climbing features (*Schooner* and *CloudBuster*) provide a challenging active play experience that appeals to many visitors, while our *Kids Town* pretend play area holds particular appeal for our younger visitors.

In terms of temporary exhibits, our *Zoom Room* exhibit is a recurring favorite (and returning soon!).

How does CCM develop children's exhibitions and educational programs?

Each exhibit is developed collaboratively through a team of educators and exhibit designers, preparators, and fabricators. These teams also include at least one visitor advocate (i.e. an individual who holds a guest-facing role).

Programs are also developed by teams with expertise and knowledge in specific areas (like STEM, arts, early childhood education). We will also work with a special programs manager to create offerings with community partners.

Chicago Children's Museum
July 2024

How early do you conduct pilot study or focus group interviews for coming exhibitions?

The themes for our exhibits and programs are determined by our museum professionals, and we then engage in various forms of informal community engagement – like talk-back boards, or team members utilizing their connections with families and partner organizations – to explore what visitors would like to see in an exhibit or program centered around the given theme. The development process for a new exhibit can take around 12-16 months.

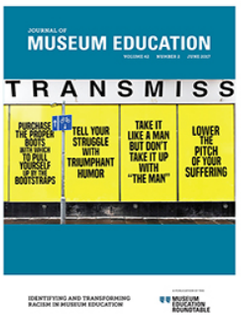
How often do you revise exhibition and educational policies?

We have a set of position papers that are reviewed every 5 years. Each department also has foundational documents that can be adapted as needed (for example, in the wake of the COVID-19 pandemic).

Any advice (dos and don'ts) for National Children's Future Museum (NCFM)?

- Really think of the whole family when considering amenities – and consider the whole child when creating your programs and spaces (e.g. ensuring that a mix of experiences and different types of play are available).
- You'll never have enough storage space — add more than you think you need! 😊
- Think about key features that are hard to add later (like elevators, especially those large enough to accommodate strollers!).
- Universal Design should be utilized as much as possible (e.g. we have all-gender bathrooms available, and the entryways to our bathroom areas are designed without doors in a way that easily accommodates strollers, wheelchairs, etc.).
- Investment in your front-line, guest-facing staff is important, as these team members can make a big impact on visitor experiences.

Chicago Children's Museum
July 2024



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TOOLS, FRAMEWORKS, AND CASE STUDIES

Application and Adaptation of an Institutional Learning Framework

Susan Foutz and Claire Thoma Emmons

ABSTRACT
The Children's Museum of Indianapolis has used a mission-aligned learning framework for more than a decade. Designed to foster and support adult-child interaction in exhibitions and programs, the central tool of the family learning framework is the Assessment of Learning Families in Exhibits (ALFIE) Inventory. ALFIE is used as a tool to plan for and measure family learning by the exhibit development, interpretation, public events and family programs, and research and evaluation departments. This article describes the development of the framework and inventory, the institutional benefits of the learning framework, and its application over the past 15 years. It concludes with an overview of recent developments in the field of children's museums, and the role of institutional learning frameworks going forward.

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Background

The Children's Museum of Indianapolis uses "family learning" as a primary lens through which to develop and deliver exhibitions and programs. With a mission to "create extraordinary learning experiences across the arts, sciences and humanities that have the power to transform the lives of children and families," the concept of family learning has been central to experience development since 2001 when this mission was adopted. Using a team-based approach to project development, a single big idea and related main messages guide the development of each exhibit and the related interpretative programs. Central to the development process is the institutional family learning framework and an inventory of observable adult-child interactions. This framework is the focus of the cycle of planning, implementation, evaluation, and improvement for exhibits and programs, creating a shared institutional understanding of what is meant by "family learning." This article describes the development of the framework and inventory, and reflects on key factors that contributed to their longevity over the past 15 years. It concludes with an overview of recent developments in the field of children's museums, and the role of institutional learning frameworks going forward.

Framework and inventory development

Throughout the 1980s and 1990s, The Children's Museum of Indianapolis was a front-runner among museums conducting research and evaluation on the effects of exhibitions.

In the early years, these studies focused on acquisition of content knowledge at the individual level and did not take into account the rich social experience that contributes to the value of a museum visit.[1] In 2001 the museum officially signaled its transition from a child-centered institution to a family-centered institution with the adoption of a new mission statement featuring "children and families." As part of this new focus on the family, the museum transitioned away from child-only programs to those that were designed with both adults and children in mind. In pursuit of institutional understanding of the broader concept of family learning, the museum partnered with the Institute for Learning Innovation (ILI), which gathered existing literature on family learning, led training seminars for museum staff, and developed instruments to measure family learning in the museum's permanent exhibits.[2] These activities built a shared understanding of learning in museums and laid the groundwork for the development of the institution's learning framework.

The museum's family learning framework builds on social constructivism and acknowledges the vital role of the social group in mediating the museum experience. Social constructivism posits that learners construct knowledge by interacting with the world around them, including other members of their social group.[3] Drawing on best practices of exhibit design for social groups,[4] exhibits are planned to meet the following goals for the exhibit experience:

- Inclusion of all family members,
- Communication between family members,
- Collaboration by family members,
- Connection to personal experiences, and
- Inspiration of family members to learn, try, or extend the experience at home.[5]

Taking a broad view of learning, the framework encompasses outcomes such as interest, knowledge, skills, learning about members of the family group, and reinforcing the family's values.

Within a few years, the museum's Director of Research and Evaluation, Dr. Barbara Wolf, determined that ILI's instruments did not meet the full needs of the institution in terms of intentionally planning for and systematically measuring family learning throughout a gallery visit. The instruments designed by ILI used the exhibit or exhibit component as the unit of analysis, that is, the aspect of family learning that would be measured, and reported on the exhibit's potential for fostering family learning, not the visiting groups' actual behavior in the exhibit. As the staff's experience with family learning grew, this focus on the exhibit rather than actual family behavior became a point of tension. Because the exhibit components themselves were not likely to change dramatically or regularly, measuring the exhibit year over year was not a helpful way to measure family learning. Beginning in 2006, Dr. Wolf built upon the foundational ideas of the framework to more clearly define "family interactions" as part of the family learning model and develop a method of assessing family learning based on observable behaviors.[6] The Children's Museum of Indianapolis defines a "family" as "at least one adult accompanied by at least one child under the age of 18 who appear to have a sustained relationship."[7] This definition acknowledges that the type of intergenerational social learning we focus on does not require a biological relationship but does require a shared history. It also sidesteps

problems that arise when "family" is defined in terms of biology, guardianship, or traditional marital structures. Using this flexible definition, a parent with their own child is a family, as is a couple visiting with their niece or granddaughter or a nanny visiting with the children under her care. Typically, school groups, camp groups, and organized tour groups fall outside of the museum's definition of a family because we cannot reliably assume a shared history between all members of the group.

Although this definition seems obvious in retrospect, the adoption of a shared definition of a family was a critical step toward institutional consensus-building around family learning. This definition also served to focus family learning on interactions between an adult and a child. While we acknowledge that social learning occurs among peers of the same age or slightly different ages, such as among a sibling group, the museum's adult-child emphasis is the primary feature of how we plan for and measure family learning. It is an intentional choice that allows us to focus our efforts. Other children's museums may choose to prioritize child-to-child or child-to-staff member interactions, as fits with their mission and organizational goals.

Drawing on extensive naturalistic observation of families in the museum's exhibitions, Dr. Wolf developed an inventory of 57 observable behaviors that serve as indicators of family learning in exhibitions. This Assessment of Learning Families in Exhibits (ALFIE) Engagement Inventory provided a greater level of nuance and specificity to the existing shared language of family learning.[8]

The ALFIE Inventory describes indicators of family learning using discrete observable behaviors, specifically between adults and children. The three primary behavioral categories in ALFIE are (1) participation, (2) collaboration and problem-solving, and (3) enhancement. Within each category, individual codes capture the details of how family members interact with each other or how the group interacts with an exhibit component (Figure 1). The participation behaviors describe the depth and type of participation occurring between a child and adult in relation to the exhibit component. For example, an adult and child approach a magnifying glass mounted over terra cotta samples, leaning over to look into the magnifying glass (Figure 2). This behavior would be coded as "family member focuses their attention resulting in participation with an interactive element." The collaboration and problem-solving codes describe behaviors that scaffold an experience such as verbally explaining or physically demonstrating how to use an exhibit element. Building on the previous example, if the adult says, "Here you can look at pieces of painted terra cotta. Rotate the wheel to choose the one you want," this would be coded as "family member fully explains the details of the activity to the child at the outset." Also included in this category is taking turns or assigning roles within the context of the exhibit activity. The enhancement behaviors, the most numerous in the inventory, focus on spoken communication beyond doing an activity. If the adult in our example asks the child, "What colors do you see?," that would be coded as "family member asks or answers close-ended questions leading to identifications or descriptions."

The ALFIE Inventory also includes behaviors that are indicative of interacting with the exhibit without social interaction between adults and children. These codes are used when a child is alone at an element or when multiple children are at an element without an adult. The inclusion of these codes in the inventory allows for comparisons at the level of family-interaction versus non-interaction as well as the more nuanced behaviors described in the three categories of participation, collaboration and problem-solving, and enhancement.

Participation Behaviors

- Family members focus their attention on a passive element, such as a collections object or a label.
- Family members focus their attention resulting in participation with an interactive element, ranging from simple to complex, physical manipulatives to digital interactives.
- Family members sit adjacent to each other and engage in parallel play.
- Family member engages in imaginative, pretend play.
- Adult watches from a supervisory or neutral stance, apparently following the child's learning actions.

Problem-Solving and Collaboration Behaviors

- Family member fully demonstrates the activity to the child at the outset.
- Family member fully explains the details of the activity to the child at the outset.
- Family member facilitates problem-solving that results in the child successfully mastering the activity.
- Family members take turns to move an activity forward or to problem-solve together.
- Family member designs or assigns roles or responsibilities.

Enhancement Behaviors

- Family member provides information or directions related to the exhibit, meant to elicit ideas or actions of another.
- Family member shares explanations or fun facts.
- Family member recognizes or rewards performance/completion of the activity.
- Family member gives encouragement to continue the activity or try again.
- Family member makes a comparison to themselves, another family member, or an object.
- Family member asks or answers close-ended questions leading to identifications of descriptions.
- Family member asks or answers open-ended questions that encourage explanation.
- Family member talks to another about family history or a personal memory.

Figure 1. Selected codes from each of the categories of the museum's ALFIE Inventory of Family Learning behaviors.

Framework and inventory application

While the ALFIE Inventory does not capture absolutely every aspect of the institutional family learning framework, as a tool, it is the primary manifestation of the museum's learning framework and places emphasis on behaviors that the institution values. It is widely used throughout the museum by exhibit developers and program staff for planning and evaluation. When used in the exhibit and program design stage, developers postulate specific inventory behaviors that an individual exhibit element or program will foster. Once an exhibit opens or a program is stable, research and evaluation staff members observe visitors and evaluate the extent to which the experience elicits the family learning behaviors specified in the planning stage.[9] This practice enhances the work of museum

Figure 2. Family learning in exhibits: a family observes paint samples in the *National Geographic Treasures of the Earth* exhibit. Credit: The Children's Museum of Indianapolis.

professionals through reflection on what hypotheses were accurate (or not) and application of this knowledge to the next exhibit or program.

In other departments, including the museum's preschool and collections, the ALFIE Inventory is not used specifically for planning or evaluation, but the framework of family learning still guides decision-making and concept development. For example, the preschool teachers use the framework to create activities for family events that provide a clear role for adult family members, and encourage discussion and collaboration between preschool students and their adults. In the work of the collections department, the curators select objects for display based partly on their potential for fostering intergenerational dialogue.[10] The family learning framework even extends to the museum's branding efforts, where the marketing department strives to use imagery that shows adults and children interacting in a museum experience as opposed to presenting experiences as child-only.

One decade down: institutional benefits and adaptations

Having a stable, highly codified learning framework for over a decade has many institutional benefits for the museum. These include unity of language across multiple departments, a shared vision of what family learning looks like, and the ability to provide a cohesive visitor experience across more than 10 gallery spaces. Through this unified approach, staff members continually learn from and improve their practice using standardized measures that are applicable regardless of the exhibit's content focus. The framework has also provided consistency over years of staff turnover at both the management and entry levels. Linking the learning framework directly to the museum's mission has been a key factor in assuring the framework's relevance and implementation. While our use and understanding of the ALFIE

Inventory has evolved over time, it is the ability to adapt the inventory while remaining true to the underlying family learning framework principles that has allowed it to continue to provide a solid rubric for measuring family learning in a variety of settings.

One of the most critical adaptations of the ALFIE Inventory for institutional practice was the creation of the Family Learning in Programs (FLIP) Inventory. The FLIP Inventory is modeled on the ALFIE Inventory but with modified language that applies directly to staff-led programming experiences, as opposed to ALFIE's focus on exhibits (Figure 3). This innovation extended the use of concrete tools that support planning and evaluation into the interpretation department. The primary tool used in program development is a modified logic model format, nicknamed "the one sheet." The one sheet is a one-page outline of a program's goals, objectives, and expected family learning behaviors drawn from the FLIP Inventory (Figure 4). As each new program is developed, a one sheet is created; it serves primarily as a training tool for staff who are learning to facilitate the program, in combination with the program script. When a program is evaluated, an observation form is created based on the content of the one sheet. The evaluator watches the program, checking off behaviors as they occur. Interpretation staff know exactly what will be measured because the evaluation is firmly based on the one sheet.

With these tools, the interpretation department has entered into a productive period of increased alignment between program goals and scripts and an evaluation process that focuses on benchmarking and continual improvement.[11] Adopting a uniform approach to evaluating programs has enabled the department to accurately predict how often certain behaviors will occur. The data from prior programs is applied to new programs, serving as a benchmark, or goal, for the new program. These benchmarks can be seen

Figure 3. Family learning in programs: a family plays the *guzheng*, a Chinese instrument, with guidance from an Interpretation staff member in the *Take Me There:* ® *China* exhibit. Credit: The Children's Museum of Indianapolis.

Exhibit / Space	*Dow AgroSciences ScienceWorks*
Program Title and Author	"Life in the Pond," created by Amy Lamar, Lead Interpreter in *ScienceWorks*
Program Description	Guests will collaborate to complete a pond field guide to 1) highlight specific elements of the pond and how they work together to maintain a balanced ecosystem and 2) observe a live feeding of a select group of pond animals.
Exhibit Big Idea	Scientific observation provokes us to form questions and seek answers that help us understand forces and connections within the natural world, for our benefit and for the health of the planet.
Target Audience	Children 6 and up and their families
Goals	Families discover the many parts of the pond habitat and how they work together to maintain a balanced ecosystem.
Objectives	• Families will be introduced to ecosystems, habitats, and food webs. • Families will collaborate in groups to make observations about the pond ecosystem (water, soil, plants, and animals). • Families will collaborate to complete a food web featuring a select animal/group of animals. • Families will experience a live feeding of a select animal/group of animals.
Family Learning Behaviors	**P** - Family member contributes information about habitats and ecosystems. **M** - Family members verbally and/or physically work on "Field Guide" simultaneously to complete it. **DD** - Family member asks or answers open ended questions that encourage explanations of how ecosystems work.
Metric	**Target attendance number for the "Life in the Pond" program is 30 people per program.** **P** – will happen at a rate of 90%, **M** – will happen 75%, **DD** – will happen 75%
Strategies	• Facilitator will make a gallery-wide gathering announcement on microphone. • Facilitator will introduce the pond and the concept of a habitat. • Facilitator will work with guests to define a habitat as a home. • Facilitator will work with guests to define important elements the pond as water, soil, plants, and animals. • Facilitator will introduce the word ecosystem and work with guests to define it as a community of living and non-living things that work together to sustain life. • Facilitator will introduce the field notes activity. • Facilitator will define a naturalist as a scientist who studies plants and animals as they live in nature. • Facilitator will introduce the concept of a food web as a tool to define the relationships between different pond elements. • Facilitators will assist groups as needed to complete their field notes. • After the field notes have been completed, facilitator will lead a group sharing session where facilitator will 1) talk about the relationships between pond elements using a food web interactive and 2) ask guests open ended questions about the effects of removing or changing aspects of pond ecosystems. • Facilitator will share facts about our featured animals during daily feeding. • Facilitators will answer follow-up open-ended questions about the pond. • Facilitators will extend interactions based on guest interest and gallery visitation.
Best Practices for **Adaptations**	**Groups:** Facilitate program as is. Formalize pond field guide activity a little more and spend more time on the group sharing and food web portion. **Younger Audiences:** Facilitate program as is. Encourage team-work with their adult to complete an observational drawing. **Adult Engagement:** • **Adult as a resource:** "Turn to your grown up, and talk about what would happen if we removed one of the magnets that we added to our food web." • **Tasks for the adult to do with their child:** Attempt assigning grown-ups an official job for the field notes activity, such as the team "recorder" or "head naturalist." **Adults only**: Omit field notes activity and discuss our habitat and specific types of plants and species of animals and their various purposes in the ecosystem.

Figure 4. Example one sheet from a staff-led gallery program.

in the "Metric" section of the one sheet in Figure 4. Since its development for the interpretation department, the use of the FLIP Inventory has expanded to other divisions such as the public events and family programs department.

Learning to be flexible

Just as the evolution of ALFIE into additional inventories was important, we discovered that being flexible with the application of the inventories in different situations was critical for ongoing success. This became clear during the exhibit development process for the

museum's *Playscape* gallery. The project team questioned whether the use of ALFIE was appropriate for a gallery designed to support the developmental needs of children from birth to age 5. Since the gallery focuses on developmentally appropriate sensory and gross-motor play, it differs from other museum exhibits in that it focuses very heavily on children's physical activity. In addition, the ALFIE Inventory relies heavily on verbal communication between adults and children, presenting a further conundrum to staff members who were planning experiences for pre-verbal children. Ultimately, staff designed the gallery to support family learning, but they did not explicitly apply the inventory in the development phase.

When planning for the summative evaluation of *Playscape*, the research and evaluation department decided that behaviors in the gallery would be observed and coded using the ALFIE Inventory to allow for comparison with other galleries. At the beginning of the process, the staff acknowledged that new codes might have to be developed if behaviors observed between pre-verbal children and adults were significantly different from those in the inventory. Through many conversations and checks for inter-rater reliability, the staff came to the conclusion that ALFIE was applicable to *Playscape*, even with its apparent differences in comparison with other galleries. These findings reconfirmed for the R&E staff that ALFIE does accurately reflect and operationalize the museum's overarching approach to family learning.

Field wide trends

Staff members at The Children's Museum of Indianapolis and other children's museums have recently investigated the development and purpose of institutional learning frameworks. In 2015, the Association of Children's Museums identified a cohort of 10 museums as part of a project funded by the Institute of Museum and Library Services.[12] With the goal of jump-starting the use of the field-wide research agenda for children's museums, the Children's Museum Research Network identified as its first research project an investigation of the institutional learning frameworks at five children's museums.[13] Combining a review of the learning frameworks and interviews with museum staff, one of the key findings of the study was the recognition that each learning framework captures the mission-based interests of the institution that created it.[14] Interestingly, the frameworks illustrated the broad range of beliefs about learning that children's museums can adopt: from focusing on family learning, to child-led play, connections with state academic standards, learning in maker-spaces, and twenty-first-century skill development through play. This diversity actually provides rich opportunities for sharing frameworks between museums, so long as the mission-based interests embedded within the framework are shared by the institutions as well. For example, The Children's Museum of Indianapolis has successfully shared the ALFIE inventory and other measurement tools with Thanksgiving Point Institute, a multi-museum complex in Utah that shares the mission of transformational family learning.

The staff interviews revealed a strong belief within each of the five museums in the value of developing and implementing a common vocabulary and set of goals to guide staff across the institution. Although it can take years to fully develop and integrate a learning framework, those institutions that invested the time have all found it worthwhile. Another finding from this research project was the identification that the children's museum

field lacks a common definition of play and a common conception of how play relates to learning, even while the field claims play as the integral part of the children's museum experience.[15] Just as the field of zoos and aquariums has benefitted from articulating a shared language around conservation, so too would the children's museum field benefit from a greater number of institutions articulating their research-based beliefs about play and learning. It follows from these trends that museums in other disciplinary domains would also benefit from developing institutional learning frameworks and/or defining key terms in their domains and articulating how those concepts play out within their walls.

Notes

1. Falk and Dierking, *Learning from Museums*.
2. Dierking et al., "The Family Learning Initiative at The Children's Museum of Indianapolis." The 2003 literature review and staff seminars included the following articles: Borun and Dritsas, "Developing Family-Friendly Exhibits"; Callanan and Jipson, "Explanatory Conversations and Young Children's Developing Scientific Literacy"; Crowley and Callanan, "Describing and Supporting Collaborative Scientific Thinking in Parent-Child Interactions"; Crowley and Jacobs, "Islands of Expertise and the Development of Family Scientific Literacy"; Dierking and Falk, "Family Behavior and Learning in Informal Science Settings"; Dierking, Luke, and Adelman, "The Family and Free-choice Learning"; Puchner, Rapoport, and Gaskins, "Learning in Children's Museums?"
3. Hein, "The Constructivist Museum"; Vygotsky, *Mind in Society*.
4. Borun et al., *Family Learning in Museums: The PISEC Perspective*.
5. Robinson, *The Exhibit Development Process*, 27–9.
6. Wood and Wolf, "Between the Lines of Engagement in Museums."
7. Wolf, "The Evolution of Family Learning at The Children's Museum of Indianapolis," 4.
8. Wolf, "Assessment of Learning Families in Exhibits (ALFIE) Engagement Inventory." Shortly after the development of the ALFIE inventory, a parallel inventory representing the same behaviors with language appropriate to staff-led programs was created; it is titled the Family Learning in Programs (FLIP) Inventory. Despite their different names, the two inventories represent the same set of observable behaviors.
9. Wolf, *Summative Evaluation of Treasures of the Earth*; Foutz and Thoma, *Summative Evaluation of Playscape*; Foutz, Thoma, and Mathews, *Summative Evaluation of Take Me There.*
10. Wood et al., "Growing FLORES for the Museum."
11. Ausman et al., "Reaching Goals."
12. http://childrensmuseums.org/members/community-conversations/the-learning-value-of-childrens-museums.
13. Foutz et al., *Analyzing Learning Frameworks in Children's Museums.*
14. Rivera and Emmons, "How Learning Frameworks Reflect Learning Theory in the Children's Museum Field."
15. Luke et al., "Play and Children's Museums?"

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No potential conflict of interest was reported by the authors.

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Object Name/Location					
Criteria	Blue 7	Green 6/5	Yellow 4	Orange 3/2	Red 1
1. *Recognizable On Initial impression--a family can easily recognize an object for what it is. "it's a tree" "it's a book" "it's a fossil"	Easily identifiable by a family audience	←→	Somewhat identifiable but may need some level of background knowledge	←→	Not identifiable
2. Object Story Extent to which the object has some kind of a story (background, how collected, when, where, how, who, why used, e.g. provenance)	There are specific stories that accompany this particular object	←→	General information about this object in relation to the museum	←→	No particular story about the object
3. *Family Interaction Level of potential interaction or interactivity brought on by the object; prompts discussion beyond initial impressions, visitor goes deeper into meaning/background, makes memories or personal connections	Prompts questions and discussion from family members	←→	Families are somewhat likely to discuss object or are curious	←→	Crickets
4. Display or Use The object is stable for use in either long term or regular use in exhibits or programming.	Regular use in exhibits, programs or other display Stable material, good condition; Long term display in exhibits is acceptable; could be used, programmatically	←→	Has been used, hasn't been used in a while; has potential based on exhibit or context	←→	May have restricted use; better if it is used online only
5. Uniqueness The extent to which the object is special, rare, or unique. Something that "belongs in a museum"	One of a kind, rare, unusual, "wow" factor; very unique; special to museum/location	←→	Some would be drawn to the object, somewhat dependent on visitor knowledge of the thing	←→	Common, ordinary, everyday, seen one you've seen them all
6. Aesthetics Extent to which the object generates interest based on visual/aesthetic appeal (sensory depth/scale) colorful, shiny, etc.	All visitors drawn to the object; extensive detail, coloring, depth, size, etc…	←→	Has some visual interest; may not have extensive detail, coloring, depth, size	←→	"Brown" = boring

*Requires some basic visitor knowledge, can be acquired through testing, reports, observation etc. Weighed less than other factors in final score.

Growing FLORES for the Museum

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Abstract The Children's Museum of Indianapolis, founded in 1925, is one of few children's museums with a substantial collection. The changing needs of family audiences, and the museum's shift in direction toward a family learning mission, began to raise several questions for the collections and curatorial staff regarding the selection of objects that would hold the greatest potential for use with family audiences. The questions led to the development of the Family Learning Object Rating and Evaluation System (FLORES). This case study describes the development of the rating instrument and strategies the team took to fine-tune its use through input from curators and museum visitor preferences. By drawing on inherent object qualities as well as visitor preferences, museums can find ways to better understand the visitor-object relationship and in turn move toward more intentional selection and inclusion of objects in exhibition planning.

Collections: A Journal for Museum and Archives Professionals, Volume 12, Number 1, Winter 2016, pp. 7–20.

The Children's Museum of Indianapolis (TCMI), founded in 1925, is one of few children's museums with a substantial collection. Its current collection of approximately 120,000 objects grew over the years through community donations and intentional collecting practices. The collection has two major areas of emphasis: *Natural*, consisting of all naturally occurring specimens and *Cultural*, which includes all human made and used artifacts. The museum's primary focus has always been on using objects in exhibits and programs to support children's learning, and over the last fifteen years it has expanded that mission to include intergenerational family learning experiences.

The family learning mission at TCMI emphasizes intergenerational learning through active participation with exhibit components and programs, primarily through hands-on experiences and immersive environments. Family learning experiences include both adults and children in the learning experience and are intended to promote collaboration and problem-solving, increased communication between family members, inspiration to explore beyond the museum, and connections to personal memories and those in the larger social context (Dierking, Luke, Foat & Adelman, 2001; Wood & Wolf, 2008).

The Children's Museum Collection: From Cookie Jars to Fossils

Until recently, the curatorial activities and collections policies at TCMI followed a fairly traditional model of object-centered decision-making. Collection management and curatorial practices in the past not only focused on immediate exhibition needs, and preservation for the future, but also encompassed a level of connoisseurship including assessment of object rarity, artistic quality, scientific importance, and associative value. However, the changing needs of family audiences, and the museum's shift in direction toward the family learning mission, began to raise several questions for the collections and curatorial staff regarding the connoisseurship model. Among the key questions was the efficacy of the model in relation to the museum's audience: Do families and curators care about the same things when examining the objects on display? Is there a way to better predict what objects will hold the greatest potential for future use with family audiences? Are we collecting the right objects that support the museum's goals for experience development?

These guiding questions, in concert with the family learning mission, provided the opportunity for more explicit visitor studies research on the best strategies for selecting, displaying and interpreting the museum's collection for family audiences. The questions led to the development of the Family Learning Object Rating and Evaluation System ("FLORES"), which included a series of criteria designed to identify artifacts that best support the museum's family learning mission. This case study describes the development of the rating instrument and strategies the team took to fine-tune its use through input from curators and museum visitor

preferences. As well, it provides insight into new approaches for using the museum's collection to support visitor experiences. The project as a whole demonstrates the importance of a museums objects and collections in contributing to visitor learning and engagement.

Demonstrating Value for Visitor Engagement with Collections

Determining the role of museum objects as part of on-going visitor engagement practices is important for creating a meaningful experience for family visitors and extending the role of the museum in families' lives. This includes a two-fold process of developing the collection and making curatorial choices about object selection that both reflect the exhibition goals and are informed by research. For a curator, making decisions about what does and does not appeal to families can be daunting; the goal for this project was to develop new strategies to achieve an intentional, data-driven selection and display of objects that would increase family interactions and extend their time spent in exhibitions. For the staff of TCMI it was important to better understand the role of the collection in support of a family learning experience. This approach required combining knowledge of object-based, curatorial research and practice with existing research on family learning and TCMI audiences.

The FLORES project began in 2013 by looking at the existing state of the TCMI collection with regard to the overarching family learning mission. It is not uncommon for museums to establish guidelines or systems for accepting objects into the collection, and TCMI had several iterations of checklists that evolved over time. (Its most recent iteration was established in the early 1990s.) The lists often included typical requirements for a potential object, such as its clear title and provenance, how it would appeal to children, and the extent to which it filled a gap in the collection. These early checklists clearly focused on the connoisseurship model; reflecting a young museum's need to develop its collection, in the early years the curators were oftentimes fairly generous in what might qualify as worthy of acquisition. As a result, the museum's current collection reflects a very eclectic range of materials that range from type specimens to relatively common, everyday ephemera. While the criteria do offer the museum a significant range of options, its realistic use of some objects is often harder to realize.

In order to develop a rating system that reflected the museum's family learning mission as well as the existing collections materials, TCMI's research team began an iterative process that incorporated existing curatorial practices of its staff along with an extensive literature review on the role of objects in exhibitions. This was paired with a three-phase prototyping process with both staff and museum audiences that took place from the fall of 2013 through summer 2015. The goal was to produce an easy-to-use predictive tool that curatorial staff could use to identify and

select objects most appropriate for inclusion in exhibitions and programs. The tool would help identify which objects were more likely to elicit key family learning behaviors such as reflecting on or making connections to a prior family experience, or discussing features of the object or its use and purpose. Additionally, the tool might be of some use in making decisions around acquiring and deaccessioning objects from the collection.

Establishing Criteria for Rating Objects

Developing an appropriate structure for the rating system meant incorporating a visitor's experience with the object and the inherent qualities and stories that come with objects on display. Wood & Latham's Object Knowledge Framework (2013), which describes the transaction that happens between visitor and object, provided direction for the overarching goals for this project. The rating tool would draw on both inherent object qualities such as story and aesthetic qualities (the "object world"), but would also incorporate the experiences of families in terms of their prior knowledge and interest, as well as overall connection to their own lives (the "visitor lifeworld"). Two strands of literature helped to inform the final rating system: exhibition design and overall collections management.

Little research in the field of exhibition design examines the inherent properties of the objects themselves and how curatorial staff might consider the likelihood of an object's successful attracting power in an exhibition. Past visitor studies research on exhibitions has clarified how visitors, objects, and environment interact within an exhibit space by examining the characteristics of exhibition design and how visitor behavior is affected by various features such as labels and layout (Bitgood, 2010; Bitgood & Patterson, 1993; Bitgood, Patterson, & Benefield, 1988; Johnston, 1998). For instance, Bitgood and Patterson (1993) released a study which concluded that the power of objects to attract visitors remained consistent regardless of changes in labeling. Other scholars have considered how visitor interaction with objects and hands-on experiences influence visitor behavior (Koran, Morrison & Lehman, 1984). More recent studies have also looked at how the attention of visitors is elicited and the multiple characteristics of exhibitions which, taken together, combine to attract or repel visitors (Bitgood, 2010). Bitgood's writing touches briefly upon the importance of factors such as object size, multi-sensory features, and locational relationships between objects, in visitor decision-making about object viewing. Yet this discussion emerges from the lens of design, rather than a collections standpoint. Leinhardt and Crowley (2002) discuss four features (resolution and density of information; scale; authenticity; and value) that make objects facilitators of learning, especially for family conversations. These features highlight the intersection of inherent physical properties and contrived cultural characteristics of an object that compel visitors to either take notice of it or continue walking. More

recently, Froggett & Trustram (2014) have used a psychosocial perspective to evaluate how visitors establish a relationship or personal connections with museum objects, focusing on the experiences and background of the individual rather than any inherent characteristics of objects.

Several recent projects in collections management research have focused on selection factors for objects that will elicit visitor attention to or connection. For example, the University College London *Collections Review Toolkit* (Dunn & Das, 2009) includes two rubrics, one focused on collections care and the other on collections use and significance. The care rubric discusses practical physical assessments such as the condition of the objects and the requirements for their maintenance. The collections use and significance rubric evaluates characteristics mentioned above such as uniqueness or value, but also touches upon an object's relative merit for purposes of teaching, research, or public engagement. Clearly, integrating components of an object's care as well as its use would be important in the defining criteria for use in exhibitions.

In general, research in this area has demonstrated that the environmental and intellectual context of an exhibit space shapes visitor behavior and learning, and museum professionals can manipulate this context through their use of design principles and interpretive materials. Given this, it is reasonable to suggest that museums can also manipulate visitor attentiveness through the choices of items from a collection, as these items have been shown to possess certain physical and cultural properties that influence visitor decision-making about objects.

Implementing FLORES

Drawing on a wide range of literature, including information on exhibition design, features of objects, attracting power, and psychosocial perspectives, the Family Learning Object Rating and Evaluation System (FLORES) includes six measures on a seven-point scale. It rates inherent object qualities like aesthetics, condition, provenance, and ease of identification, as well as a series of transactive qualities such as potential for generating discussion, personal interest, and generational appeal. Through prototyping and pilot testing, the research team refined the six measures that weigh both object qualities and visitor behaviors to create a score that can determine the extent to which visitors might be attracted to an object. To use the tool, a reviewer scores the object according to each of the six criteria to arrive at a final score out of 100 (Table 1). Following the testing phase the research team set an initial "cut score" at 72, determined by reviewing ratings of multiple objects known to have strong visitor preferences. Objects above this score have the highest potential for family learning. Objects with FLORES scores below 72 were less likely to support family learning and were thus strong candidates for deaccessioning.[1]

Briefly, the six measures of FLORES are defined as follows:

1. *Recognizable by a family audience.* A family audience has some level of familiarity with what the object actually is, or audiences are readily able to make sense of it (Norman, 1988). A highly rated object would be easily identifiable by a family member, not requiring a significant level of knowledge or expertise.
2. *Has a compelling story.* The object's origin or prior use can be explained through a personal connection or ownership (Dunn & Das, 2009), or has historical or cultural significance that lends both a sense of credibility and authenticity of the object (Leinhardt & Crowley, 2002).
3. *Promotes discussion or family interaction.* Visitors are able to make meaning from personal connections or the object's cultural or social significance (Froggett & Trustram, 2014; Turkle, 2007; Wood & Latham, 2013). The object connects to some aspect of the visitor's life experiences and the interpretation of the object can extend or expand on this experience.
4. *Can be used in an exhibition on display.* The object is of stable material and in good condition; its physical condition is such that it can be used regularly in exhibits, programs, or other displays. Long-term display in exhibits is acceptable and/or it could be used, programmatically (Dunn & Das), potentially with interactive and hands-on components (Koran, et. al., 1984).
5. *Is unique, special, or rare: "it belongs in a museum."* There is a perceived value that is worth looking at (Bitgood, 2010) or has some level of uniqueness separate from the object's authenticity (Leinhardt & Crowley). The object is important, iconic, and relevant to the overall message or themes of an exhibition (Francis, Slack & Edwards, 2011).
6. *Is aesthetically pleasing or inviting.* The object has some level of detail that appeals to the senses, such as its color, texture, or smell (Leinhardt & Crowley); it has a perceptive value without reference to another object (Diamond & Diamond, 2004, Leinhardt & Crowley) or an, inherent degree of attractiveness (Francis, Slack & Edwards).

Testing and Refining the Tool

Testing and refining the FLORES system is ongoing and beginning to show promising results for predicting the family learning potential and overall visitor interest of an object. To date, three phases of testing have been completed. In Phase 1, conducted in the fall of 2013, the research team tested 100 objects from the museum's collection; roughly 60 were selected at random from its collection database and the rest were chosen on recommendation from curatorial staff. This phase of testing included two components: testing the criteria and usability of the FLORES rating

Figure 1. Research team member Elizabeth Quay evaluating an object in the museum's collection area.

tool, and collecting audience feedback on objects. In order to test the criteria, 35 Museum Studies graduate students from IUPUI enrolled in two classes (Collections Care and Management, taught by Holly Cusack-McVeigh and Object-Based Learning, taught by Elee Wood) worked in teams to assess a set of objects. Each team was assigned a set of five objects; students were given access to all of the museum's collections records on these objects and spent two hours researching and recording data on their condition in the museum's collection department (Figure 1). From these research sessions each student completed a FLORES score for each object and made a recommendation on whether it should be maintained in the collection or was a candidate for deaccessioning.

Students then selected objects to test with museum audiences. Family groups were asked to review a set of photographs of eight different objects along with a simple identification label with the name of the object, its place of origin, and its date of origin. Visitors divided the object photographs twice: first, they sorted memorable objects from those which were forgettable, then the familiar from the unfamiliar. Finally, the visitors ranked the set of objects in order from most important to least important according to their own perceptions, and then were asked to explain their answers. Using the audience feedback, the research team then compared the audience preferences to the overall object score. Key findings from this phase of study indicated that if visitors categorized an object as more memorable, they also ranked it as more important. For visitors, familiarity of the object was not a factor in ranking the object as important. For example, 88% of the visitors labeled a Conestoga wagon as "memorable" and 83% as "familiar." They ranked the wagon as most important 50% of the time, and overall 74% of visitors put it in the top four items of the set. Conversely, of the visitors who looked at the 1927 Japanese friendship doll, "Miss Shimane," 50% labeled it as "memorable" and 42% as "familiar." Sixty-seven percent of the time visitors ranked the doll in the bottom in terms of importance.

Using the visitor data alongside the object's FLORES score provided greater insight into refining the tool and its potential. In the first iteration of the tool, the scores reflected visitor preferences approximately half of the time. For example, the

Conestoga wagon had a score of 70.3, just below the cut score, and was ranked third overall in importance by the audience. The friendship doll had a very high score of 89.3, but an overall audience rank of 23rd of 40 in order of importance. In order to better understand the discrepancies between the score and the audience preferences, the research team drew on the observational data and visitor description of their interests. Overall, the family *discussions* about objects centered around three main areas: 1) the sensory elements of the object (texture, color, shape, size); 2) defining, explaining or questioning the background information on the object's function or use; and 3) creating or situating the object within a narrative or story. When asked what more they wanted to know about the object, almost all visitors discussed or asked questions related to the object's function, purpose, background or use. Knowledge and function questions about the object were more prominent with objects that were unfamiliar to the visitor. Conversely, the kind of meaning making that visitors experienced with or around the objects, based on the content of their conversations, was rarely related to the function, use, or content background of the object. Instead, these were focused on personal connections or relating the object to something they had seen elsewhere. For example, a child's christening gown most often generated responses related to family experiences with baptisms, making a gown for a child, or a memory of one's own gown.

During the summer of 2014 the researchers undertook another phase of testing with museum audiences. During Phase 2 visitors were asked to look at the same set of objects, but this time the physical object, rather than a photograph, was on display and tested with two different types of labels. Visitors were first shown simple labels that included object name, place of origin and date of origin and asked to rank the objects in order of importance. Then, the observer flipped the labels and had visitors rank the objects again; this second set of labels were more story-based, often playful in tone, and ranged from informative to narrative descriptions of key features or aspects of an object that might help visitors understand its role, purpose or function. This iteration of testing qualitative analysis revealed that visitors preferred objects that were unique or rare, highly colorful, perceived to be "old," and related to family memories or stories. Visitors preferred an object less if they had "seen too many before" or had difficulty determining the object's purpose, even with a basic identification label. Overall the in-person ratings were one-point higher on average, and the objects that were either very large or very small increased in ratings by more than one point. As has been found in other research on object-label testing (Francis, Slack, & Edwards, 2011), the interpretive labels did not generally change a visitor's perception of the importance of the object.

Data analysis during Phases 1 and 2 included comparison of rankings; content analysis of the observation and interview data; and comparison of visitor preferences with the rating system results. In all, 156 different family groups (256 adults, 287 children) participated across the first two testing sessions. Based on testing, the first iteration of the FLORES rating system accurately predicted whether visitors

were interested or not interested in the object at least half the time, but 25% of the time an object's rating was higher than visitor preferences, i.e. the object score suggested that visitors would be more interested in the object than they actually were. Given these responses, in reviewing the relationship between visitor categorization and ranking, the researchers determined that more work was needed to refine the criteria of the rating system to achieve better consistency. This meant trying to understand the discrepancies between the object rating and the visitor responses. For example, the object's aesthetic qualities were an essential feature of conversation and preference, but were not separated out in the initial scoring system. Similarly, the initial criteria lumped personal connection and intergenerational appeal together, yet visitor responses indicated these were clearly two different ways of thinking and talking about the objects. By carefully reviewing these discrepancies and the existing research, the researchers were able to create a more refined series of measures.

During Phase 3 the research team used the revised FLORES tool to rate a series of objects already on display in the museum and compared the ratings with existing timing and tracking data. These data provided the team with a first-hand account of the relationship between the object score and amount of time spent by visitors at the object. Using 146 objects for comparison, the average time spent by visitors at each object or case of objects was 39.63 seconds (n=1,308 object views). The rating system proved to be a useful guide in demonstrating which objects were more and less likely to be observed by visitors. Unfortunately, when multiple objects comprise a case display, determining which object the visitor is looking at is very difficult. Similarly, a number of design factors that come into play must be considered. The research team is now working to develop a system to more closely track visitor attention to objects within cases. Given the complexity of this situation, the team opted to review the single object cases and their related FLORES score along with the visitor stay time at those cases. Using a statistical measure of prediction, the initial findings demonstrate a weak potential relationship between the object's score and the amount of time a visitor spends at the case. In other words, the score does have some predictive value, but it is yet imprecise. Initial results suggest that objects above the cut score of 72 are more likely to have higher stay times than objects below the cut score. There is less indication at this point that higher scoring objects result in longer stay times overall. This is in part due to the very small number of instances of single case objects (n= 13) and overall visitor observations at TCMI.

Lessons Learned

The development of the FLORES tool reveals a fascinating interplay between visitor knowledge and object displays. In particular, the audience research and object rating system helps to distinguish key object features that best connect to the visitor's prior knowledge and personal experiences with those elements of the object that

Figure 2. Cowboy Pig Cookie Jar. ©The Children's Museum of Indianapolis.

are more likely to connect with the visitor. For example, audiences indicated both a cowboy pig cookie jar (Figure 2) and the 1949 Crosley console television set (Figure 3) were familiar objects, but rated the TV as more memorable than the cookie jar. On the FLORES scoring, the TV rated at 84.96 and the Cookie Jar at 48.9, demonstrating the importance of looking beyond simple measures of familiarity or memorability.

Similarly, the team considered objects that with a compelling story or provenance alongside dimensions of aesthetics and family discussion. Here the primary example is the difference between a 1951 Black Phantom Schwinn bicycle, and the 1927 Miss Shimane Japanese friendship doll (Figure 4). Both objects provide intriguing back-stories that might appeal to a family audience: the Schwinn was a Christmas present and Miss Shimane part of a goodwill exchange of dolls between the US and Japan in the 1920s. While these backstories make for fantastic collections research, the compelling factors for museum visitors were different. Visitors had a far more difficult time making connections to the doll or finding something to talk about it, even despite efforts in Phase 2 to provide more descriptive interpretive labels making contemporary connections to things like the American Girl Dolls. Here too, the FLORES score reveals potential for differentiating the objects: the bicycle scored 83.18 and the doll 78.54, but with both objects landing above the cut score, making a decision on the use of either object would require clear interpretive messaging and intentional strategies to attract family audiences. A final noticeable difference in the use of the FLORES tool for overall object selection came from the inclusion of aesthetics as a factor of interest. Here again, although visual appeal certainly contributes to a family's reaction, the object's aesthetics cannot be used alone for decision-making. A fine example of this comes from the comparison of two vibrantly colored objects: a 3′ tall "self-portrait" sculpture, and a small, bright red, enameled turtle toy. The colorfulness of each object drew families' attention, but they quickly lost interest in the turtle because they could not imagine how it was used, what its purpose was, or how it could be of interest. The self-portrait has many more components that help family members make sense of the object. Created in the

Figure 3. Crosley Television Set, 1949. ©The Children's Museum of Indianapolis.

style of a Southwestern storytelling doll, it features a variety of smaller dolls of family members engaged in different activities—cooking, dancing, working on a computer—scattered throughout the skirt of the main figure. The images of different, contemporary activities depicted in the sculpture provided high levels of conversation and connection for family audiences.

This study provides insight on visitor responses to objects in a museum setting and the different perspectives have on those objects. By drawing on inherent object qualities as well as visitor preferences, museums can find ways

Figure 3. Miss Shimane Japanese Friendship Doll, 1927. © 2005. Photo by Wendy Kaveney.

to better understand the visitor-object relationship and in turn move toward more intentional selection and inclusion of objects in exhibition planning. The development of this object-rating system contributes to a broader view of the complexities of visitor-object relationships. It draws on current research that centers on the personal and psychosocial connection to objects and builds on past knowledge of the environmental and intellectual influences on visitor behavior and learning. This new strategy allowed a more intentional selection of objects by curators and exhibit developers by identifying the object-based features or characteristics that best support dialogue and interaction of visitors. With these objects there is greater potential to increase the time spent with the objects, which enhances the overall learning value and meaning of the museum visit.

The FLORES tool is not without some flaws however. Through the Phase 3 testing it became clear that the predictive value of an object is more complicated when it appears in a case alongside one or more objects. As such it is nearly impossible to confirm the individual level an object effects on audience members. As well, the design and lighting of the case, and related interactive experiences that are adjacent to the object undoubtedly have an effect on the visitor attention and stay time at any particular object or object case. Two key examples illustrate this point nicely. First, the team found that for "stand alone" cases with a single object on display, the average visitor stay time at an object was 38.2 seconds. The stay time at cases with multiple objects averaged 40.9 seconds, and those objects with interactive components as part of the object case averaged a stay time of 46.3 seconds. Clearly the interactive components increased stay time, but the small difference between single objects and multiple objects in a case could be related to some additional elements of design. Second, in addition to the potential influences that multiple objects and interactive experiences have on the visitor stay time with objects, design elements such as the location of the object cases within an exhibition space, color choices, layout and lighting can also play an important role in visitor attention and attraction. For example, timing studies in TCMI's *Take Me There: China* exhibit found that at a multiple-object case of religious artifacts, adult visitors were more likely to stop and look at the case when they saw it in front of them than if they approached from either side. Timing and tracking of family groups indicated that very few children were attracted to the case overall regardless of how they approached it. Museum staff will use this information to study visitor behavior in greater detail and plan revisions to case layout and design where possible, and to inform future decisions on object use and selection.

Up Next: Intentional Selection of Objects

Up to this point the FLORES tool has been used in prototyping and post-hoc analysis of visitor attraction and interest. Moving forward, TCMI's collections and exhibit

development teams will begin to experiment with using the tool as part of the object selection and identification process when planning exhibitions. Teams will rate the objects using the FLORES tool in advance of the exhibit opening and use the tool as strategy for selecting the best objects for inclusion in the exhibit.

As the exhibit planning teams develop their main messages and goals for each exhibit, they will also review the museum's collection and potential loans for objects that best fit the exhibit's goals and messages. By working across the categories of the FLORES tool, both exhibit developers and curators can discuss the interpretive needs of the exhibition, the role that objects will play in that interpretation, and the potential that collections objects have to advance an exhibit's overall storyline. In very initial tests to date, use of the rating system prompted more discussion between designers and curators around how best to display objects that had lower ratings, and stimulated greater discussion among exhibit planning teams on whether an object was a strong choice overall given the potential limitations of audience interest (Serrell, 1998). For example, in an upcoming exhibition on fairy tales, the curator and exhibit developer used the FLORES tool to determine which objects would need stronger interpretation and those that were better used as background material rather than as focal objects in the exhibit.

The goal of a museum exhibit planning team is to increase the overall time that family audiences spend with objects and to increase the number of visitors overall who view objects in museum exhibitions. By focusing on the interconnected nature of object qualities along with existing knowledge of visitor preferences, museum exhibitions and displays can connect with visitors more effectively and ultimately create more relevant museum experiences. As the unique feature of museums is in making connections between visitors and objects of human experience, harnessing the power of visitor studies research to support that goal seems ever more prudent. Similarly, several of the collections staff have indicated an interest to use FLORES to support (and justify) decision-making for acquiring new material and in deaccessioning materials that are no longer relevant to a museum's mission. Use of the FLORES tool in a pre-acquisition situation will provide curators with a broader perspective on the aspects of potential objects and where they may or may not have the best impact for family audiences. FLORES helps staff determine the role of the object in relation to the audience experience further demonstrates the importance of collections in shaping the overall visitor experience.

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COLLECTIONS MANAGEMENT POLICIES
THE CHILDREN'S MUSEUM OF INDIANAPOLIS

REVISED OCTOBER, 2017

INTRODUCTION

The following Museum Mission Statement and Purpose of the Collection shall guide The Children's Museum of Indianapolis, hereinafter TCM, in managing its development, treatment and use of objects in its permanent collection and objects under its temporary care.

Museum Mission Statement

> "To create extraordinary learning experiences that have the power to transform the lives of children and families."

Purpose of the Collection

> TCM collects objects to use in creating and implementing extraordinary visitor experiences and preserves those objects and their contextual information for future generations of children and their families.

I. THE COLLECTIONS

A. Scope

The Collection is categorized into two principal areas of interest: Arts & Humanities and Natural World.

1. Arts and Humanities

The Arts and Humanities Collections encompass any artifacts made and used by humans, which are studied and presented in fields that include anthropology, ethnology, archaeology, history, popular culture, and the visual arts. The Arts and Humanities collections contain manufactured and handmade artifacts that reflect trends in popular culture, that advocate an understanding and appreciation of historic movements and events, and help instill an appreciation for personal history—and ordinary people and events—in citizens of America and the world. Change and continuity are documented through toys and dolls, clothing and textiles, household and occupational artifacts, sports and leisure activities, folk arts, decorative arts, and fine arts, and archival materials. Development of the Arts and Humanities Collections broadly focuses on acquisition and use of artifacts that encourage family learning and that reflect the shared experiences and diverse differences in American life and world cultures. These collections support upcoming exhibits through acquisition of iconic objects that facilitate family learning and increase first-time and repeat attendance. Selection from this

collection are featured in *Power of Children: Making a Difference*; *Carousel Wishes and Dreams; Fireworks of Glass; All Aboard; Take Me There; National Geographic Treasures of the Earth and the Underwater Archaeology Lab; American Pop: The Galleries for American Arts and Popular Culture; and the National Art Museum of Sport (NAMOS) and Sports Legends Experience* galleries.

2. Natural Science

The Natural Science Collection is comprised of unique objects that help foster both curiosity and enthusiasm for the sciences. Science is an intensely hands on and investigative endeavor and this is reflected in the scope and the usage of the objects in the collection. Items related to zoology, botany and geology provide core materials that are utilized throughout the museum in exhibit programs and interpretation. Particular emphasis is placed on field collection of paleontological materials which are featured in the *Dinosphere: Now You're in Their World* gallery, in the *Mann Properties Gallery* which features pieces from the Lanzendorf Paleo Art Collection, and in the *Polly Horton Hix Paleo Prep Lab* where visitors can interact with paleontologists and see scientific research being conducted. Portions of the Natural Science Collection also appear in the *Dow ScienceWorks* gallery. This collection also supports cultural exhibits, such as the *Treasures of the Earth* exhibit, by acquiring related materials in addition to collecting iconic objects that will facilitate family learning and increase first-time and repeat attendance.

B. Classification of Collection

Objects are classified by an alphabetical code assigned by the responsible Curator into whose collection the object is placed.

1. *"A" Objects*
   "A" objects must meet most of the following criteria: rare, best representative of type, best example of the collecting focus, contextually and/or historically valuable, monetarily valuable, fragile.
2. *"B" Objects*
   "B" objects should meet some of the following criteria: good representative of type, good example of the collecting focus, significant contextual or interpretive value, stable, readily available and obtainable, sturdy.
3. "*C" Objects*
   "C" objects meet the following criteria: durable, easily replaceable, easily interpreted, appropriate for hands-on activities.
4. *"TCM-I" Objects*
   "TCM-I" objects are inexpensive, fully expendable and readily obtainable in large quantities.

TCM's Permanent Collection is made up of objects classified as "A" or "B." "C" objects are tracked, but not included in the Permanent Collection, and "TCM-I" objects are not tracked nor considered part of the Permanent Collection.

C. Conservation Policies

TCM assures preventive care by maintaining and monitoring objects and their environments. The comprehensive conservation program provides for preservation and safety of objects in public use, in transit or in storage, as well as eradication and prevention of pests harmful to the Collection.

1. *Exhibition*
   The Exhibition Conservation Manager shall serve as consultant to TCM staff to ensure appropriate exhibition techniques and environments for all Permanent Collection objects.
2. *Environment*
   Environmental standards for the Collection are determined, maintained and monitored in cooperation with Facility Maintenance staff.
3. *Security*
   Security issues regarding the Collection and the safety of staff or public in relation to the Collection are addressed in consultation with the Director of Safety and Security.
4. *Emergency*
   TCM's Emergency Response Team maintains a separate emergency preparedness plan to prevent or minimize potential emergencies. The emergency preparedness plan also addresses how TCM shall proceed with recovery and stabilization efforts of the Collection in the aftermath of a disaster.
5. *Standards for Treatment and Use*
   "A" and "B" objects shall receive conservation care in accordance to the American Institute of Conservation Code of Ethics and Standards.
   a. "A" Objects
      "A" objects require a controlled environment, carefully planned handling and monitoring while in use or in storage. "A" objects may be used, when protected, in exhibitions and programs, and may be handled with gloves by Collections staff or by other TCM staff upon approval by the responsible Curator.
   b. "B" Objects
      "B" objects require careful installation to protect their structure and surface but do not require an archival environment for storage or exhibition. "B" objects may be used in supervised programs and classes, handled with gloves by TCM staff upon approval by the responsible Curator.
   c. "C" Objects
      "C" objects may be handled by the general public in supervised classes and programs upon approval by the responsible Curator.

d. "TCM-I" Objects

TCM-I objects may be used in exhibits and handled by the general public in unsupervised settings.

II. ACQUISITION

A. Authority

Authorization for acquisitions shall reside in the Director of Collections, the Vice President of Experience Development and Family Learning, the President and CEO and the Board of Trustees.

1. *Initial Authorization*

a. Curatorial Consideration

An object offered to TCM shall first be considered by the responsible Curator in collaboration with the Director of Collections. The Curator and Director shall prepare a proposal for consideration for any offered objects and send this for approval to the Vice President of Experience Development and Family Learning and the President and CEO who will determine whether or not the object falls within the Scope of the collection area, and otherwise complies with the requirements of this Policy and the needs of the institution.

b. Minimum Data

In presenting an object for accession, the Curator shall provide, at a minimum, the following information: donor/vendor name and address, an explanation of how the object was used in its historical/cultural/natural context and other available information regarding its provenance.

c. Legal Status, Board of Trustee approval

The presenting Curator shall be responsible for reviewing ethical and legal compliance of the object proposed for accession. If the Curator is uncertain about the ethical or legal status of an object under consideration for acquisition, the Director of Collections shall request further research or consult the President and CEO and/or legal counsel to approve or disapprove of the acquisition.

d. Review and approval

Approval for accession of any objects must come from the Director of Collections, the Vice President of Experience Development and Family Learning, the President and CEO or the Board of Trustees.

e. Storage and care

TCM must be able to provide for the storage, protection and preservation of the object under conditions that ensure its availability for TCM purposes and in keeping with professionally accepted practices.

2. *Financial Considerations*

a. Objects less than $3,000.00

Objects offered for sale to TCM at a cost of less than $3000.00 may be accessioned upon the authorization of the responsible Curator with approval from the Director of Collections and the Vice President of Experience Development and Family Learning if the current year's budget is sufficient to defray such costs.

b. Objects between $3,000.00 and $100,000.00

Objects offered for sale to TCM at a cost of more than $3000.00 but less than $100,000.00 must meet all aforementioned conditions and be approved, prior to purchase and in writing, by the Vice President of Experience Development and Family Learning and by the President and CEO.

c. Objects more than $100,000.00

Objects offered for sale to TCM at a cost of $100,000.00 or greater must meet all aforementioned conditions and be approved, prior to purchase and in writing, by the President and CEO and the Board of Trustees.

B. Methods

Objects fitting the scope of the Collection and its purpose shall be purchased by or gifted to TCM free and clear of all liens and encumbrances. Every effort will be made to secure intellectual property rights to any object accessioned into the Collection.

1. *Gift/Purchase*

An object may be acquired by TCM through gift, testamentary transfer, purchase, trade or other lawful means.

a. Proof of Title and Intellectual Property Ownership

The donor or vendor shall provide proof that he or she has title to the object free and clear of liens and encumbrances. The donor or vendor shall also provide such documentation as is necessary to determine intellectual property ownership in the object, and preferably transfer intellectual property rights in the object to TCM.

b. Cultural Property Requirements

All acquisitions must comply with all applicable statutory, regulatory or common law requirements including, without limitation, the Endangered Species Acts, the Cultural Property Implementation Act (CPIA) and the Native American Graves Protection and Repatriation Act (NAGPRA). The responsible Curator and the Director of Collections shall determine whether or not an acquisition complies with all applicable laws. Any uncertainty must be resolved by TCM's legal counsel.

c. Restricted Gifts

Restrictions as to use or future disposition of objects given to or purchased by TCM are discouraged. Occasionally, a restricted or

conditional gift may be offered that fits the Scope of the Collection and contributes directly to the purposes and activities of TCM. Under such circumstances, the gift may be accepted with the restriction. However, every effort shall be made to place a reasonable limit on the time for which the restrictions may apply, and to define the conditions under which the restrictions will terminate. Restrictions shall be reduced to writing and retained as part of the title documents in the accession records of each object.

2. *Conversion, Objects Lacking Documentation*

   In the event that objects on loan to TCM are unclaimed by the owner, or the owner moves with no forwarding address or dies, leaving no heirs and no instructions as the return of the property, TCM may acquire title to the property pursuant to the abandoned property laws governing the state of Indiana

3. *Discovery in the Field*

   An object in the field may be accessioned provided that such acquisition has the written consent of the owner of the real property upon which the discovery was made, and that it complies with the requirements of this Policy and any applicable state or federal laws. The Sensitive Materials Policy shall be consulted prior to accessioning any object discovered in the field.

C. Objects for Future Sale

Objects which are offered for gift or testamentary transfer that are inconsistent with the Scope or Purpose of the Collection or TCM's mission may be accepted by the responsible Curator, with consent of the prospective donor and Director of Collections to be sold by TCM at a later date. The donor should contact a tax advisor regarding any tax consequences resulting from a subsequent sale of the object. The proceeds of such sale shall be credited to the Artifact Acquisition Account. These objects shall not be accessioned into the Permanent Collection, but will be accepted as resource material. The transfer of title document shall clearly state the intention to sell these objects.

D. Rejected Objects

TCM shall make clear to prospective donors that it reserves the right to accept portions of any lot and to reject any portion, which the Curator or other authority deems inconsistent with the Scope or Purpose of the Collection or TCM's mission. Rejected objects shall promptly be returned to the owner/ or individual offering the object.

III. DOCUMENTATION

A. Accessioning

Accessioning is the act of recording and processing an addition to TCM's Permanent Collection. Acquisition of a group of objects from the same source at the same time shall be accessioned as one "lot."

1. *Maintenance of Records*
   TCM maintains and updates all documentary records of accessioned artifacts and specimens in perpetuity.
2. *Electronic Records*
   A distinct and separate record shall be created and maintained in the automated Collections Management database for each object accessioned.
3. *Photographic Records*
   As an aid to visual identification, a digital image of all newly accessioned objects shall be made.

B. Cataloging

As evidence of the identity, condition, historic, natural or cultural context of an artifact or specimen enhances both its intrinsic and extrinsic value, all objects or groups of objects acquired for the Collection shall be catalogued to meet the standards of the museum profession and further TCM's goal to utilize the Collection more broadly.

C. Inventory

A physical inventory of all artifacts and specimens shall be conducted under the supervision of Collections Management staff on an on-going basis. As computer records of the inventory are created and updated, duplicate records shall be stored off site.

D. Reports of Collections Activities

1. *Accessioning and Deaccessioning*
   No less frequently than once per year, Curators shall report to the President and CEO and the Board of Trustees on all accessioning and deaccessioning activities of the previous year.
2. *Inventory Reports*
   No less frequently than once per year, the Director of Collections or Chief Registrar shall report to the President and CEO and Board of Trustees on the physical inventory activity of the previous year.
3. *Full Collections Report*
   Each February, a full report of acquisition and deaccession activities of the previous year shall be made to the Vice President of Education and Experience, the President and CEO, and the Board of Trustees.

IV. DEACCESSION

Deaccession is the formal removal of accessioned objects from TCM's Permanent Collection. TCM, as a public trust, is obliged to preserve, protect and manage the objects in its care, while ensuring that the Collection remains relevant to and consistent with TCM's mission and the Scope and Purpose of the Collection. Central to that obligation is the refinement of the Collection through thoughtful re-evaluation and disposition of objects that no longer meet the criteria set forth in this Policy. The determination to dispose of any object held in trust shall be governed by this section.

A. Authority

1. *Initiation of Deaccessioning*

Recommendation and approval to deaccession an object from the Collection shall be initiated by the responsible Curator or by the Director of Collections who shall provide basic information, such as the reason for deaccessioning, current value and recommended method of disposal. Any objects deemed to pose a threat to the health and safety of the staff, the public or the Collection will be removed and disposed of properly.

2. *Review by Registration Staff*

Registration staff shall verify basic data on objects recommended for deaccession, such as donor/vendor name and address, other information regarding provenance, and transfer of title to ascertain unrestricted and unencumbered title to the object.

3. *Administrative Review*

a. Review by working group

After the Curator provides authorization for objects to be considered for deaccession, Registration staff shall assemble a list of proposed deaccessioned objects for monthly or periodic review by the Vice President of Experience Development and Family Learning, the President and CEO and the Board of Trustees' Experience Development Working Group. This group shall make a recommendation to the Board of Trustees that approved objects be removed from TCM's Permanent Collection.

b. Board approval and memorandum

Upon Board approval, Registration staff shall create a Memorandum of Deaccession showing final approval to deaccession. The Memo shall indicate the following: accession number, popular name, acquisition method, source, initial value, current value, legal title transfer, reason for deaccession, and disposition method. The memorandum shall be dated and signed by the Curator and Director of Collections and must show the date of Board approval.

c. Maintenance of memorandum

The Memorandum of Deaccession shall be maintained in perpetuity in TCM archives with other documentary records of deaccessioned artifacts and specimens.

B. Standards

1. *Title*

TCM must have unrestricted and unencumbered title to any object that is to be deaccessioned in order to provide merchantable title. The determination of title status shall be made from TCM's records. If the records show clear title in TCM, the parties authorized to deaccession may proceed with the disposition. If the title is not clear, the Director of Collections shall recommend alternatives to deaccessioning to the Vice President of Experience Development and Family Learning and the Board of Trustees.

2. *Staff/Board Prohibition*

The staff, volunteers, members of TCM's Board of Trustees and their immediate families are prohibited from directly or indirectly acquiring objects deaccessioned from the Collection.

3. *Donor/Donor's Heirs Prohibition*

   Objects deaccessioned from TCM should not ordinarily be returned to the previous owner or heirs of the owner unless the conditions of gift or loan require such return. If the object is returned in this manner and the donor claimed the fair market value of the donation as a tax deduction at the time of the gift, the return of the object may have significant tax consequences and the recipient should consult a tax advisor.

4. *Documentation*

   TCM maintains in its archives all documentary records of deaccessioned artifacts and specimens in perpetuity.

C. Methods

The methods are set forth in order of preference for deaccessioning, except as may be noted.

1. *Transfer to Education Collection*

   TCM's "B" Permanent Collections objects that are duplicates or are easily replaceable and/or good reproductions and in stable condition may be transferred by deaccession to the "TCM-I" Education Collections.

2. *Exchange/Trade*

   Objects may be exchanged with or traded for other objects held by another museum or vendor, provided the value of the objects received is commensurate with those deaccessioned or that the trade will enable TCM to fulfill a particular need in its exhibits or educational programs. Trading with other public institutions is preferred over trading with private collectors and collections. However, trading with private collectors is permissible if the desired object is not available from a public-institution source.

3. *Sale and Fund Use*

   Reasonable efforts will be made to sell objects to public institutions before sale to private collectors is considered. The services of licensed auctioneers may be employed to sell deaccessioned objects. When objects are auctioned locally, they will not be advertised as being deaccessioned from TCM's collection. All proceeds generated from sales shall be credited to the Artifact Acquisition and Conservation Account.

   As further set forth below, the Artifact Acquisition and Conservation Account may be used to acquire objects through purchases and long-term loans, pay for conservation of collection objects (including preventative and active care), and pay for the long-term care of collection material which is on long-term loan to TCM, as long as the objects being acquired or cared for help advance TCM's mission and strategic exhibit needs. Long-term loans will be defined as objects that are given to TCM for a

minimum of 2 to 20 years and that fulfill an exhibition need that cannot be met by TCM's own collection objects.

4. *Donation*

   Donation of deaccessioned objects to other museums and educational institutions is permitted.

5. *Repatriation*

   TCM shall return or repatriate all objects which are required by any lawful statute, regulation, ordinance, final court order, treaty or convention to which TCM is subject. Return or repatriation shall be accomplished in full compliance with such requirements.

6. *Destruction*

   Objects may be destroyed if they are so weak that they cannot be properly displayed or conserved, or if they pose a threat of infestation to other objects in the Collection or present a potential health threat to staff or the public.

7. *Artifact Acquisition and Conservation Account*

   Proceeds generated from sales of deaccessioned objects may be used to acquire objects through purchases and long-term loans, pay for conservation of collection objects (including preventative and active care), and pay for the long-term care of collection material which is on long-term loan to the TCM, as long as the objects being acquired or cared for help advance TCM's mission and strategic exhibit needs. Funds from this account may be used to secure part-time or temporary help to further the museum's deaccession efforts provided that the cost to deaccession does not exceed the financial benefits to the Artifact Acquisition and Conservation Account.

V. LOANS

To achieve its educational goals, TCM may from time to time make items from or portions of its Collection available to other reputable public institutions on a loan basis subject to conditions imposed by TCM to ensure the protection, safe transport, return and insurance for the value of the object(s). Similarly, TCM may wish to borrow objects from other institutions or individuals in order to fulfill an exhibition, programmatic or educational requirement.

A. Incoming Loans

1. *Examples and definitions*

   a. Internally Generated Loans

      A loan initiated by Curatorial staff and completed by Collections Registration staff.

   b. Special Exhibition

      A packaged exhibition developed and crated by another institution and managed for TCM by the Director of International Traveling Exhibits and, if artifacts or specimens are included in the exhibition, by Collections Registration staff.

c. Augmented Exhibition

A traveling exhibition developed and crated by another institution managed for TCM by the Director of International Traveling Exhibits with additional objects from TCM's Collection or objects on loan to TCM from other institutions or individuals, managed by Collections Registration and Curatorial staff.

2. *Authority*

a. Authority to Propose Loan

Recommendations for incoming loans may be made by anyone, but loans must by formally proposed by one of the following: the responsible Curator, Director of Collections, the Director of International Traveling Exhibits, or Exhibit Developer.

b. Authority to Approve Loan

Internally Generated Loans or loans for Augmented Exhibitions must be approved by either the responsible Curator, Director of Collections or the Director of International Traveling Exhibits. Special Exhibitions must be approved by the Director of International Traveling Exhibits and, where appropriate, by a decision-making body comprised of museum staff.

3. *Standards*

a. Terms

Loans for a term greater than five (5) years are discouraged but not prohibited in proper cases. Incoming loan contracts shall be written to ensure that ownership of abandoned objects on loan reverts to TCM pursuant to the abandoned property laws governing the state of Indiana.

b. Care, Preservation and Exhibition

TCM gives the same care to borrowed artifacts and specimens as it does to its own objects of similar classification.

c. Insurance

Borrowed objects shall be insured for the value provided by the lender under TCM's "all-risk," wall-to-wall policy, subject to the following standard exclusions: wear and tear; insects and vermin; previous repair, restoration or retouching process; warlike action or nuclear risk. If the lender maintains his or her own insurance coverage, TCM shall ask to be named as additional insured under the lender's insurance contract. TCM shall endeavor to have a waiver of rights of subrogation included in the insuring contract.

d. Reproduction and Credit

TCM shall attempt to obtain express permission of the lender to photograph and/or reproduce images of loaned objects for purposes related to TCM's mission. TCM shall carefully document the intellectual property status of loaned objects. Unless otherwise

instructed in writing, TCM gives credit to the lender in all publications and on labels.

e. Return/Renewal of Loans

Upon expiration of the loan period, TCM may either request renewal of the loan for an agreed-upon renewal term OR return the objects the lender. Objects shall be returned to the lender upon the expiration date of the loan period or delivered as lender instructs in writing.

4. *Documentation*

The Collections Manager shall oversee the creation and compilation of all documents related to the loan of objects to TCM. The Collections Manager shall complete incoming and outgoing reports on the condition of all loaned objects.

5. *Care*

The Collections Manager, in consultation with the Exhibition and Conservation Manager, shall handle unpacking, installation and repacking of artifacts and specimens for incoming loans. TCM gives the same care to borrowed artifacts and specimens as it does to its own "A" objects.

B. Outgoing Loans

1. *Examples and definitions*

a. Public Institutions

TCM loans objects to other museums and educational institutions for periods established in the loan documents.

b. Traveling Exhibitions

A packaged exhibition developed and created by TCM and managed by the Director of International Traveling Exhibits.

2. *Authority*

a. Authorization

All outgoing loans must be authorized by the responsible Curator.

b. Administrative Approval for Objects in Traveling Exhibits not created by TCM

Due to the increased exposure to risk while traveling for extended periods, special review and approval by the Director of Collections, the Vice President of Experience Development and Family Learning and President and CEO may be required for objects requested to accompany special Traveling Exhibitions planned and sponsored by other museums.

3. *Standards*

a. Requests for Loan

Requests for loans must be received from the potential borrower sixty (60) days prior to scheduled pick up or shipment date. Any reduction of this time must be approved by the Director of Collections.

b. Facilities Report

TCM requires borrowers of Collections objects to file a Standard Facilities Report of the American Association of Museums or equivalent.

c. Title

TCM does not loan objects to which it does not hold clear title, such as those on loan from other museums and individuals, without written permission of the lender.

4. *Documentation*

The Collections Manager shall oversee the creation and compilation of all documents related to the loan of objects from TCM. The Collections Manager shall complete outgoing and incoming reports on the condition of all objects for outgoing loan.

5. *Care*

TCM requires borrowers to comply with the professionally-sanctioned standards of care for objects borrowed from its Collection. An object may be considered for loan to other museums when the object's condition is assessed as stable and if the institution requesting the loan can assure that transportation and exhibition conditions are sufficient to protect the object. Evidence of damage at the time of receipt or while in the borrower's custody must be reported immediately to TCM. The borrower may not clean, repair, alter or restore objects on loan from TCM without express written permission of the responsible Curator.

6. *Reproduction and Credit*

Each object shall be labeled and credited to The Children's Museum of Indianapolis. Unless otherwise stipulated in writing, the visiting public may take casual photographs, but no other reproduction is permitted. Should the borrower wish to use the object for catalog or publicity purposes, the borrower must enter into a licensing agreement with TCM

7. *Return/Renewal of Loans*

Upon expiration of the loan period, the borrower may either request renewal of the loan for a mutually agreed upon renewal term OR return the object(s) to TCM. Objects shall be returned to TCM upon the expiration date or delivered as TCM instructs in writing.

VII. ACCESS TO COLLECTION

Access to the Collection may be granted only by Collections staff on a case-by-case basis. Requests for access are granted whenever possible. This section covers only physical access to the Collection. Those who are permitted access to the Collection may not photograph any part of the Collection. Exceptions may be warranted, and in such cases a separate licensing agreement must be executed.

A. Research

The Collection may be used for study and research at the discretion of the responsible Curator and the Collections Registration staff. Persons wishing to access the Collection for research purposes must contact the responsible Curator or Collections Registration staff in advance to schedule an appointment.

B. Tours

Tours of Collections storage are granted on a case-by-case basis. Tours may be arranged by making an appointment with members of the Collections staff at least fourteen (14) days in advance.

C. Photography

TCM regulates photography of its Collections and exhibits. Requests for photography must be approved by the responsible Curator and the Director of Collections, and those wishing to have access to the Collection for this purpose must execute a licensing agreement.

VIII. ETHICS

A. Conflicts of Interest

Conflict of interest provisions are standard in effective museum Collections policies. The intent of these provisions is to protect all involved from using their museum affiliation to benefit financially from that affiliation outside the scope of their position with the museum.

1. *Disclosure statements and Collection Focus*
   Members of the Board of Trustees, all staff members working with Collections and those at the Director level and above must disclose to TCM through a Conflict of Interest statement the types of items they have acquired or intend to acquire for their personal collections. These persons will verify or amend their statements during the first quarter of each year. Because of the breadth of TCM's Scope of Collections, a brief description of the focus of TCM collecting for any given year ("Collection Focus") will be shared at the time the Conflict of Interest statement is distributed.

2. *Examination*
   The Director of Collections, in consultation with the responsible Curatorial staff, shall examine all Conflict of Interest statements to determine whether a conflict of interest exists between TCM and the person submitting the statement. If a Board or staff member, after becoming affiliated with TCM, has acquired an item (excluding inherited family possessions) during a year in which such item reasonably was within TCM's Collection Focus, then within thirty (30) days from the date TCM received such Conflict of Interest statement, TCM shall determine whether it desires to obtain the item and shall so notify the Board or staff member involved. Upon such notice from TCM, the Board or staff

member shall disclose the price he or she paid for the item and then, at TCM's option, sell the item to TCM at the same price.

If the Board or staff member objects to TCM's decision to purchase the item, the Board or staff member may raise the matter with the Executive Committee, and the Executive Committee shall determine whether the item must be sold to TCM.

3. *Assurance of Confidentiality*
Statements of collecting activity shall be retained by the Director of Collections in a confidential, secure file. The information included on the statements will be revealed only to the President and CEO, Vice President of Experience Development and Family Learning and, where appropriate, to Curatorial staff.

B. Appraisals

TCM does not appraise property for the public. Curators provide values to Permanent Collections objects for insurance purposes only. A list of certified appraisers is available to the public upon request.

C. Sensitive Materials Policy

TCM has adopted a Sensitive Materials Policy. TCM will make all reasonable efforts to identify sensitive materials within its current collection and respect the ethics and diversity of all peoples when making acquisition and deaccession decisions. To that end, TCM implements the following to aid in the management of sensitive material and protect the institution, its staff and those who wish to donate, loan or sell sensitive material to TCM's collection.

1. Definitions: *Sensitive materials* – objects or materials that require special treatment in recognition of their importance to a particular culture or nation. Sensitive materials may be categorized as either cultural or natural, with examples of each including;
    a. Cultural: *Human remains and their associated funerary objects,* which are defined as objects that, as a part of the death rite or ceremony of a culture, are reasonably believed to have been placed with individual human remains either at the time of death or later; and *Sacred objects*, which are specific ceremonial items needed by traditional religious leaders for the practice of traditional religions by their present-day adherents.
    b. Natural: *Biological, geological, or paleontological specimens*, which include the preserved remains of vertebrate and invertebrate animals, including dinosaurs and other prehistoric animals and plants.

c. *Concerned Party* – museum-recognized tribe, community or organization connected to sensitive materials by ties of culture, descent or geography.

2. Policies & Procedures

a. The Committee:

TCM's existing Education and Experience Development Working Group will create a sub-committee of this workgroup to serve as the sensitive materials committee (the "Committee") and will act as an advisory board on matters of sensitive materials, including acquisition, deaccession, care, and, if necessary, repatriation of such objects. The Director of Collections in conjunction with the Vice President of Education and Experience Development will recommend objects for the Committee to consider.

b. Repatriation:

Should TCM determine that an object classified during the inventory process is sensitive material and should be repatriated, TCM shall follow the deaccessioning procedures set forth in in this Collections Management Policy. The curator responsible for the collection from which the object shall be deaccessioned shall contact and initiate negotiations with the concerned party under the guidance of the Committee. Such efforts to repatriate may result in a number of arrangements, including but not limited to the return of the object to the concerned party; the retention of the object with no restrictions on use, care or exhibition; the retention of objects with restrictions on use, care or exhibition; the lending of objects either permanently or temporarily; or the holding in trust of the sensitive material for the concerned party. Regardless of the arrangement, TCM reserves the right to retain museum records associated with the object for archival and educational purposes.

c. Procedure for acquisition of sensitive materials:

The Committee shall be consulted when TCM is presented with an opportunity to acquire sensitive material and such acquisition is recommended by the Collections Department. The Committee shall take into account a number of factors, including TCM's collection policies and TCM's mission, before making a final decision on whether to accept the material. Should the Committee or the Collections Department determine it is in TCM's best interest not to acquire the material, TCM will recommend an alternate institution better equipped to preserve and care for such material. Decisions regarding acquisition will be made within a reasonable amount of time, not to exceed one month.

d. Emergency approval procedure:

The Director of Collections may request emergency approval procedure regarding the accession of sensitive materials to the

Collection. Situations that may warrant such procedure include, are not limited to, auction or sale, short-notice programs, field recovery, or objects at immediate risk or of immediate need. The Director of Collections shall contact the Committee and poll its members. A majority vote of the Committee shall constitute approval.

e. Acquisition of sensitive materials:
   TCM may acquire sensitive materials that the Committee regards to be in line with the furtherance of TCM's mission and collections policies. Objects considered for acquisition will be approved in compliance with all known ethical and legal guidelines related to sensitive materials. TCM will use its best efforts to include all concerned parties in the identification, care and possible disposition of sensitive materials when necessary.
f. Restriction of public access to sensitive materials:
   TCM reserves the right to restrict general public access to sensitive materials, though TCM staff may allow recognized concerned parties access to such materials.
g. Due diligence:
   Before borrowing or accessioning sensitive material into its collection, TCM will use due diligence to determine if the object was stolen or otherwise wrongfully acquired, and to ensure that the party offering the object for loan or accession is the bona fide owner of the object. Should TCM determine that the object was wrongfully acquired, or that the party offering the object is not the bona fide owner of such object, TCM shall promptly notify the appropriate authorities. TCM will use due diligence in addressing any and all intellectual property issues when acquiring or deaccessioning sensitive materials.
h. Discouragement of unethical collecting practices:
   TCM supports the efforts of all local, state, federal and international authorities to protect art, antiquities, national treasures, and ethnographic material from illicit trade and destruction. Objects that have been stolen or unethically acquired should not be accessioned in any TCM collection. No object shall be considered for acquisition if TCM has reasonable evidence to suspect that the object was wrongfully, unethically, or illegally acquired. TCM shall carefully scrutinize all donations and acquisitions of sensitive materials in an attempt to provide disincentive to unethical collecting practices, including the trafficking in and illicit looting of prehistoric and archaeological sites.

3. *Human Remains and Funerary Objects*
   a. NAGPRA compliance:

TCM has complied with requirements set forth by the Native American Graves Protection and Repatriation Act (NAGPRA), 25 U.S.C. 3003. Inventories were completed in accordance with the law and approximately 104 Native groups were contacted, beginning in 1993. TCM continues to abide by all NAGPRA requirements and shall process all incoming NAGPRA requests with speed and professionalism.

b. Human remains:

TCM shall treat all human remains with the utmost respect and dignity. TCM may acquire human remains in compliance with all known ethical and legal guidelines if such acquisition is within TCM's collections plans and policies, and/or TCM deems their acquisition necessary to their preservation and continued care. TCM reserves the right to display remains (in accordance with NAGPRA and any relevant ethical and legal considerations) if such display is in line with TCM's mission.

c. Removal of human remains and associated funerary objects:

TCM shall not remove human remains and their associated funerary objects or materials from their original context nor conduct any destructive studies on such remains, objects, and materials, except as part of procedures determined to be appropriate through consultation with concerned parties.

4. *Sensitive Materials of the Natural World*

a. Acquisition of naturally-occurring sensitive materials:

TCM shall not purchase, borrow, or accept as a donation any naturally-occurring sensitive material without proper documentation. Prior to TCM accepting naturally-occurring sensitive material, the sellers, loaners, or donors shall sign a sworn affidavit or certificate warranting the source of the material. Similar sworn statements shall be issued and signed by those parties who own and/or lease the property on which the material was discovered, and by those parties engaged in the excavation and/or preparation of the material. Such statements should include the following information: the scientific and colloquial name, if any, of the material; a legal description of the real estate upon which the material was found, including directional coordinates and the name and contact information of the legal owners and lessors of the property; the approximate date of when the material was discovered and when excavation and removal began; and the names of all parties who supervised such excavation.

b. Field research and recovery:

TCM leases land and sponsors trips to areas rich in biological, geological, and paleontological specimens for the purpose of

excavating, obtaining, owning, displaying and educating its audience. TCM shall work with experts in the relevant field to ensure that, to the extent possible, TCM obtains necessary permits and complies with all state and federal laws regulating the excavation and ownership of such naturally sensitive materials. TCM shall conduct all field research and collecting activities with sensitivity to continued protection of natural resources and in compliance with applicable laws protecting animal and plant species.

c. Accession of naturally-occurring sensitive materials:
Unprocessed biological, geological, or paleontological specimens collected in lots or bulk from the field, or held for processing, shall not be considered for acquisition until specimens have been selected and preserved by methods standard to the type of collection. Such unprocessed materials shall receive a field number upon transfer of legal title, and, once processed, the field number shall be retained with an accession number added.

IX. REVISION OF POLICY

A. Review and Revision

This Policy shall be reviewed every five (5) years by Collections staff to ensure their relevance to TCM's collecting focus, operations and programs and compliance with changes in applicable laws. The Policy shall be revised when deemed necessary by Collections staff in consultation with the Vice President for Experience Development and Family Learning and the President and CEO. Once revised, the Policy shall be reviewed and approved by the Board of Trustees.

B. Interim Input

Any person may submit questions or comments, in writing, on the effectiveness of this Policy to the Director of Collections or Collections Registration staff at any time. These comments shall be considered during the subsequent review of this Policy.

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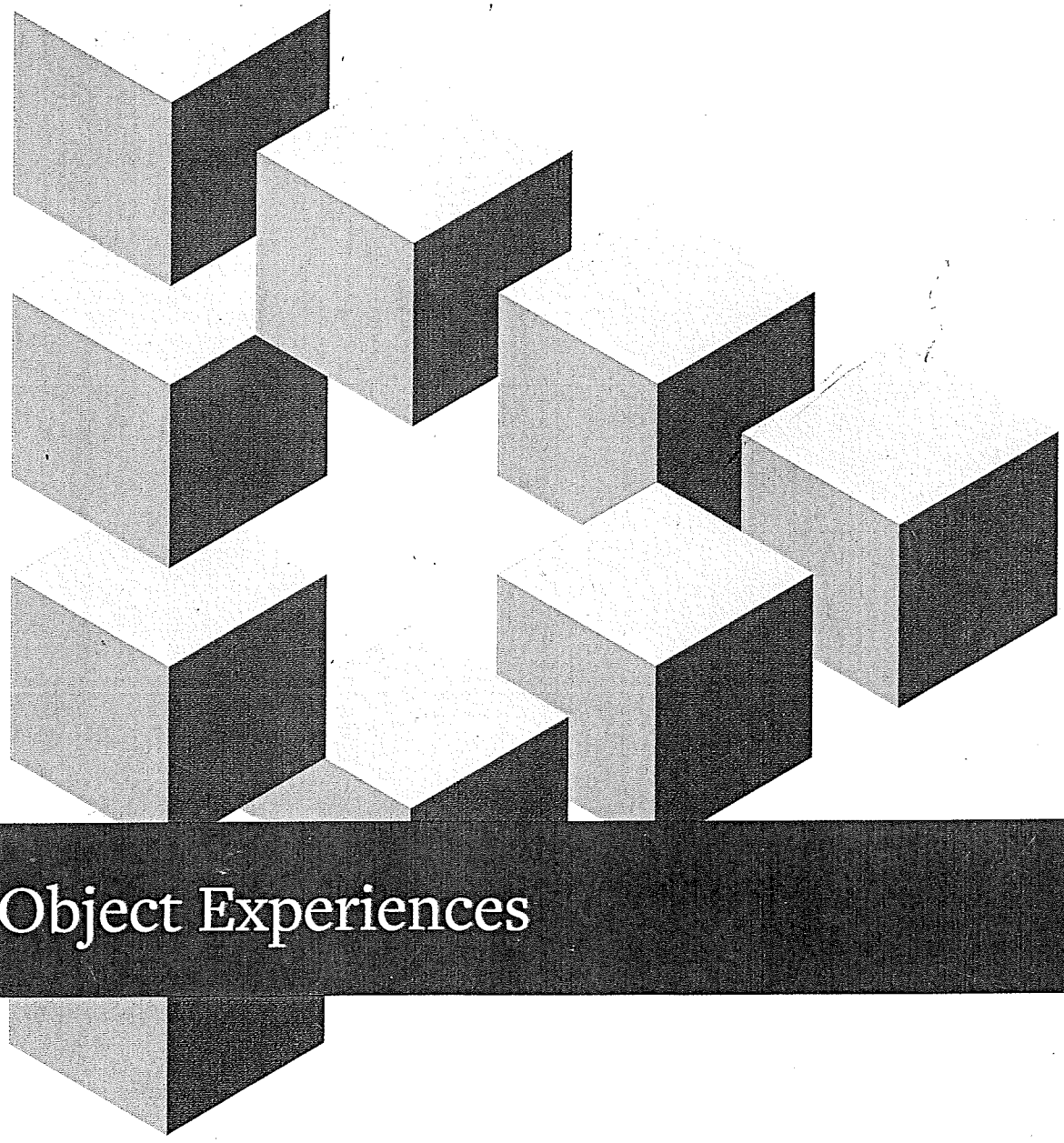
American Alliance of Museums

NAME
NATIONAL ASSOCIATION FOR MUSEUM EXHIBITION

exhibition

A JOURNAL OF EXHIBITION THEORY & PRACTICE FOR MUSEUM PROFESSIONALS



Object Experiences

Transforming Object-Based Learning Experiences

Elizabeth Wood, Susan Foutz, Christian G. Carron

At The Children's Museum of Indianapolis, we have been experimenting with and implementing various strategies to encourage family learning. Our goals are to encourage adults and children to participate together in conversations about museum exhibitions; to connect those ideas and objects to past experiences; and to spark or inspire ongoing interest in the content. Towards that end, staff members have developed goals for each area of practice in exhibitions, programs, and even collections to integrate these family-learning objectives.[1]

In 2013 we introduced the Family Learning Object Rating Evaluation System (FLORES). Developed at The Children's Museum of Indianapolis, it is part of our ongoing effort to determine the best strategies for selecting, displaying, and interpreting a museum's collection for family audiences. In this article, we describe how FLORES is used by designers, curators, and exhibit developers when planning exhibitions to create a more compelling experience for everyone. We also provide examples of its application in three very different temporary exhibitions: *Pirates and Princesses: Storybook Adventures!*, *National Geographic Sacred Journeys*, and *Terra Cotta Warriors: The Emperor's Painted Army*.

1 Susan Foutz and Claire Thoma Emmons, "Application and Adaptation of an Institutional Learning Framework," *Journal of Museum Education* 42, no. 2 (2017): 179–189.

Using FLORES has proven useful in helping us face the challenge of connecting family audiences to a very broad collection that includes natural history, American history, popular culture, art, and world cultures objects (and certainly not a typical collection for a children's museum). The biggest question we face is figuring out what makes these objects important for the audience and which ones will bring about the greatest opportunities for family learning. These goals in turn support the museum's overall mission to create extraordinary experiences that have the power to transform the lives of families. In order for our team to create these deeper family-learning opportunities with our collections, we had to transform both what we saw as the role of objects in the exhibition and how to get our visitors talking about and become more involved with the objects on display.

Creating a Process to Rate Objects

We built FLORES as a collaboration between the museum's collections, exhibit development, and audience research departments and the museum studies program at Indiana University-Purdue University Indianapolis. The tool allows staff to rate artifacts across a wide range of criteria. Our early work clarified how objects and environments interact within an exhibition

The Family Learning Object Rating Evaluation System (FLORES) Rating Categories and Factors

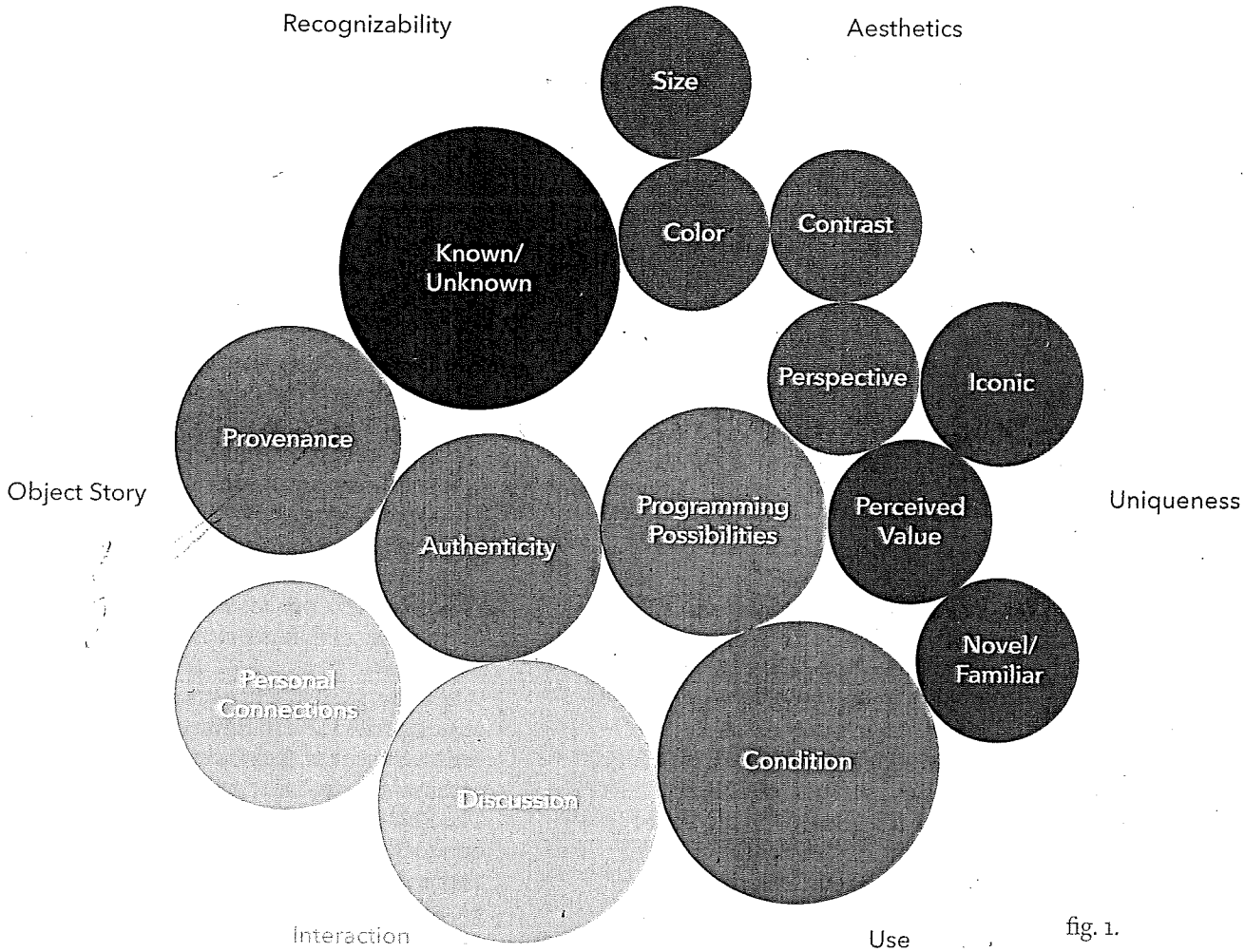


fig. 1.
The FLORES Rating System and aspects of each rating area.

space by discussing characteristics that successfully communicate messages to visitors. FLORES goes one step further. It draws upon a wide range of literature, including information on exhibition design, features of objects, attracting power, and psychosocial perspectives. It comprises six measures, each rated on a seven-point scale of object qualities, including aesthetics, condition, provenance, and ease of identification (fig. 1).

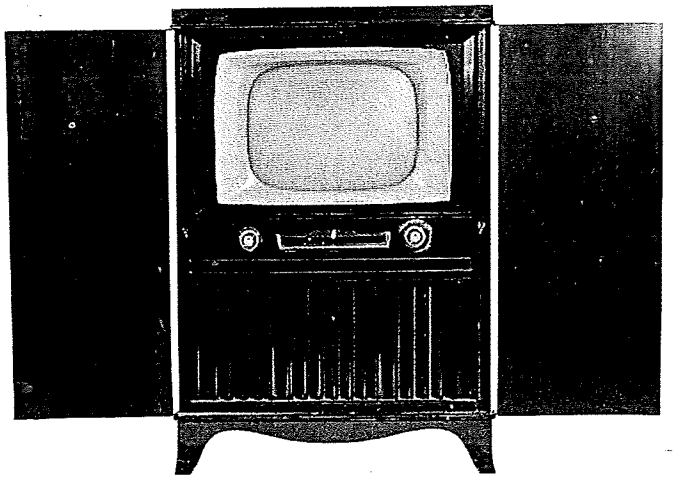
The scale includes a series of transactive qualities, such as the potential for generating discussion, a compelling story, and generational appeal. We developed the tool by prototyping and pilot testing objects and rating categories with our audiences. By

working collaboratively and across many perspectives, we refined the six measures to weigh both object qualities and visitor behaviors, creating a score that can determine the extent to which visitors might be attracted to an object. When we start new projects, members of the team review object lists together to be sure that scoring and interpretation of the measures are consistent. Ultimately, though, we use the ' tool to stimulate conversation for the team to determine what is included in an exhibition.

The six measures of FLORES include:

- *Recognizable.* The object is something that we believe a family audience (e.g. an adult and at least one child under the age of 12) would be familiar with, or is readily identifiable by its basic size and shape, and that does not require specific expertise in a content area.
- *Compelling.* The object has a unique story or personal connection that gives it a sense of credibility or authenticity, or has a cultural or historic significance.
- *Promotes discussion.* Visitors are able to make a personal or social connection with the object that elicits conversation.
- *Is viable for display.* While more of an internal measure, this factor is important for object selection by collections staff. Is it stable and safe for display in an exhibit context?
- *Unique or rare.* The notion that the object is special enough to be on display in a museum, i.e., it is not something that you would readily see every day.
- *Aesthetics.* The object has a high degree of sensory elements, such as color, texture, smell, or has design elements that draw the eye.

fig. 2.
Crosley television set, 1940s.



When compiled, the final "score" for each object guides the exhibition team in their use and treatment of the objects in the collection within the overall design and interpretation. The FLORES system has also been used by curators to evaluate potential acquisitions, as a predictive measure of how successful an object might be for family learning. As a result of using this system, we have been able to increase the time that visitors spend looking at and discussing objects on display.[2] We have been experimenting with how to use the object ratings to track visitor attention and interest with different objects in the exhibition. As timing and tracking of visitors through exhibitions is a primary way of measuring interest we have begun to match time spent at an object display with the strength of an object score to see if higher

2 For the full explanation of our testing and prototyping process, see Elizabeth Wood, Alysha Zemanek, Laura Weiss, and Christian G. Carron, "Growing FLORES for the Museum," *Collections: A Journal for Museums and Archives Professionals* 12, no. 1 (2016): 7–22.

rated items also relate to more time spent at an exhibit display.

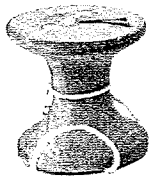


fig. 3.
Turtle pull toy.

Using FLORES in Planning

As we worked through multiple iterations of testing and prototyping, we came to learn that using these criteria for object selection allowed us to better understand how to think differently about and integrate the objects into the overall design and interpretation of an exhibition. We noticed that the interplay between different criteria affected how visitors might interpret an object. For example, something like a 1940s television set (fig. 2) was equally as recognizable to visitors as a cute animal-shaped cookie jar, but the cookie jar was far too ordinary to be remarkable to visitors and didn't generate much interest. The TV set fared much better because the opportunities for visitors to make a personal connection (or share a memory) and generating group conversation were much higher due to the age of the object or its perceived uniqueness.

Similarly, aesthetics almost always helped an object score higher, which suggested a better overall attraction for visitors. However, a shiny red turtle pull toy (fig. 3) ultimately fared less well than an intricate folk art sculpture about a family's history. Here, the nature of the sculpture provided significant opportunities for discussion, was unique, and was clear to families what it represented. The turtle toy, on the other hand, proved to be hard to recognize beyond its turtle shape. There was limited opportunity for it to start a conversation.

As we built our experience in using the tool for different purposes, we began to experiment with how we designed and developed exhibitions. We looked at the inherent strengths and the potential gaps that each object presented in terms of family learning potential. In several instances, we changed a plan for an exhibit component based on how well an object scored and tested with visitors.

Pirates and Princesses: Context Matters

The exhibition *Pirates and Princesses: Storybook Adventures!* included immersive environments that promoted role-playing and storytelling around pirates and fairy tales.[3] It was more typical of non-collecting children's museum exhibitions, in that it was focused on experiences rather than on object displays. Throughout the exhibition, the team included objects from our world cultures collection along with examples from popular culture to augment the storytelling and interpretation of pirates and princesses in literature and movies. Early visitor testing of proposed objects using FLORES revealed that several lower scoring items were found to be less compelling on their own and need to be placed into greater context with other like items to tell a story.

For example, many of our visitors were unfamiliar with one object in particular, a silver ingot. For it to be effective, instead of displaying it as a stand-alone object in the case as originally planned, the exhibition

3 A temporary exhibition open from January 2016 to February 2017.

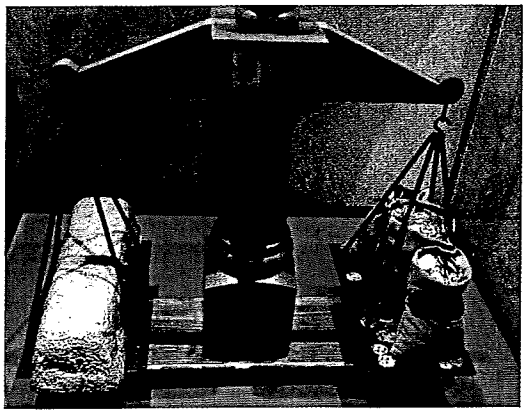


fig. 4.
Silver ingot on display in *Pirates and Princesses*.

team developed a model around the ingot to help visitors make sense of what it was. Inside the display case, the team placed the ingot on one side of a mock scale, and balanced it on the other side by bags containing more than 1,000 replica pieces of eight (Spanish coins). This display helped to convey the ingot's weight and value at a glance (fig. 4). Visitors most surely would have overlooked the ingot alone, and its significance, without the surrounding content providing contextual value.

Terra Cotta Warriors: The Wow Factor

In presenting *Terra Cotta Warriors: The Emperor's Painted Army*, we faced the challenge of creating a family-friendly exhibition of world-renowned and conceptually complicated cultural objects.[4] While the life sized Terra Cotta Warrior figures from Xi'an, China already offered a compelling story and reflected a significant "unique" quality, we were faced with how to generate conversation between adults and children regarding the objects. Since early market testing had shown that many potential visitors were unfamiliar with the Terra Cotta Warriors, we knew that we could not rely upon familiarity with the story to stimulate meaningful discussion. With few interactive experiences planned, the exhibition focused visitor attention on the objects. To build opportunities for discussion, we turned to the notion of the gateway or "wow" object to carefully choose objects that would score high on our FLORES measures including strong aesthetic elements and easily recognizable objects for children.[5] We selected the most recognizable objects and those that visitors might have seen through *National Geographic* or *Smithsonian Magazine* – human-sized figures, faces, and animals – to aid in recognition for children. We then built on the objects' aesthetic qualities to draw attention to their uniqueness.

Our exhibition evaluation demonstrated that we were able to compel visitors to stay longer with objects as compared to previous object displays (from 51 to 61 seconds per object, nearly double that of our baseline measures in other object-specific displays in other exhibitions at our museum). When observing visitor groups (both those with children and adult-only) at these objects, 89 percent demonstrated a behavior indicative of "close looking," such as leaning in to get a closer look, looking at the object from multiple sides of the case, and pointing at the object; 60 percent had at least one person read the label; and 50 percent had a conversation. Furthermore, groups with children talked to each other significantly more often than groups without children (fig. 5). The team was surprised and excited by the findings that indicated that visitors were engaging with objects in more in-depth ways than just time spent in the exhibition.

4 A temporary exhibition open from May to November 2014.

5 David Francis, Steve Slack, and Claire Edwards, "An Evaluation of Object-Centered Approaches to Interpretation at the British Museum," in *Museum Gallery Interpretation and Material Culture*, ed. Juliette Fritsch (New York: Routledge, 2011), 153–164.

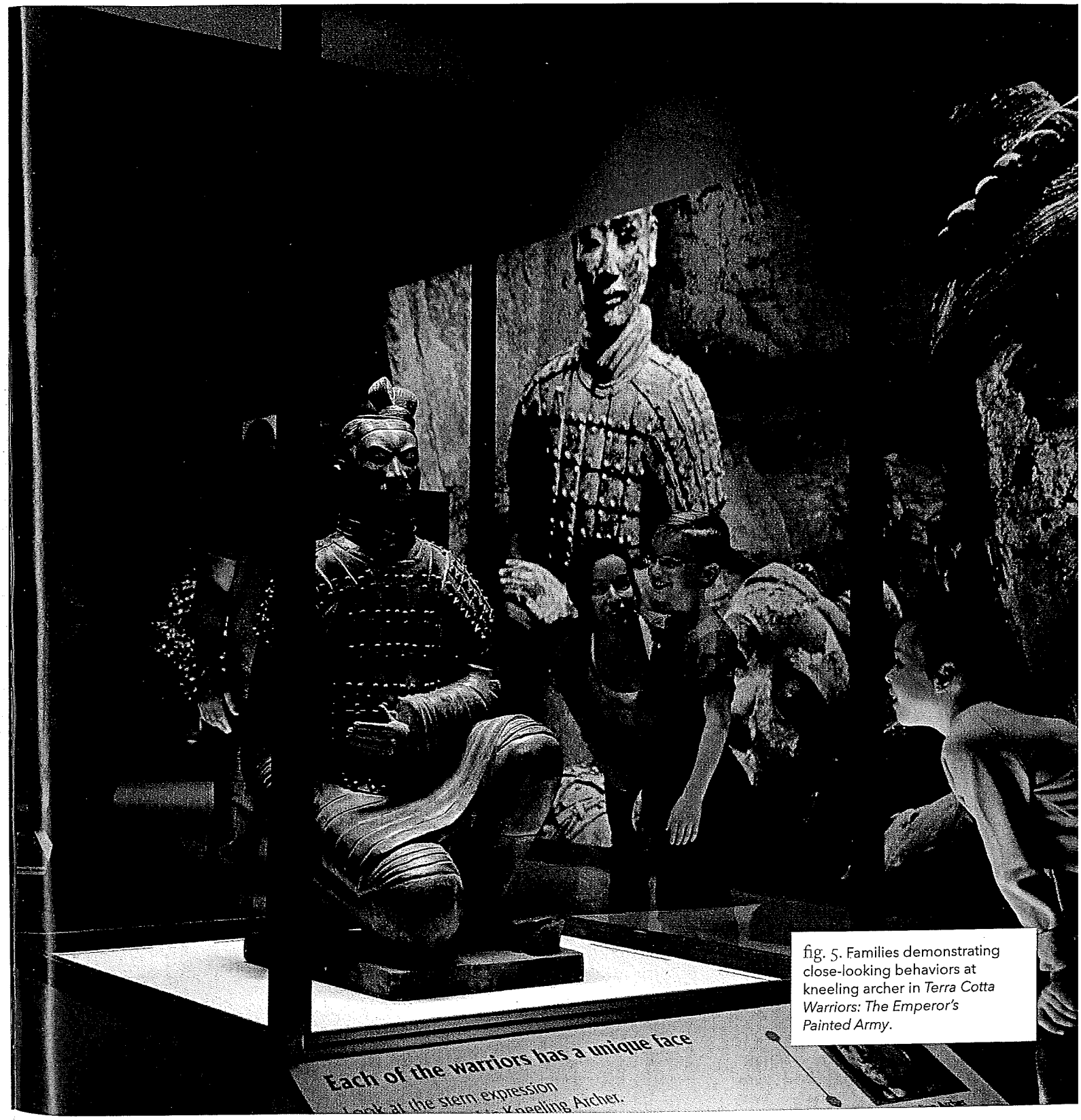


fig. 5. Families demonstrating close-looking behaviors at kneeling archer in *Terra Cotta Warriors: The Emperor's Painted Army*.

National Geographic Sacred Journeys: Up Close and Personal

Most recently, we experimented with FLORES for *National Geographic Sacred Journeys*.[6] This traveling exhibition, created in-house and drawing on object loans from around the world, explored world religions with the goal of fostering awareness of cultural diversity and respect for religious traditions. Using the lens of pilgrimage and travel to sacred places, it focused on five historic sites and the "extraordinary artifacts" that connect people to religious experiences. It was more adult focused and had few interactive components, not unlike the Terra Cotta Warriors exhibition.

Based on our initial rating process of the objects using FLORES (fig. 6), we developed strategies to build stronger connections between the objects and the visitor through specific design-based choices.[7] For example, with a replica Shroud of Turin, we placed the artifact at eye level and labeled key features for visitors to investigate. Observations as part of the exhibition evaluation found that the Shroud had an extremely long stay time compared to other objects in the exhibition and in the museum (87 seconds on average) and also sparked conversations between visitors. We obtained an authentic touchable portion of the Western Wall from Jerusalem (fig. 7) and as hoped, visitors took the opportunity to physically connect with this object; 94 percent of groups who stopped at the Western Wall block were observed touching it.

As part of our mission to support and create opportunities for family learning, we want to encourage more visitors to talk about, and become involved with, the objects featured in our exhibitions. As an institution, we had experience evaluating our success in exhibitions by measuring awareness of content and messages, observations of family behaviors at interactive exhibits, and the meaning made from the experience. However, our existing evaluation did not measure family learning with regard to the objects on exhibit. When it came to developing strategies for family learning as part of collections and object displays, we sought to build our own understanding of the meaning and potential that each object has to contribute to that overall learning objective. In each of the examples above, our goal was

6 On display at The Children's Museum of Indianapolis from August 2015 to February 2016.

7 See Christian G. Carron, Susan Foutz, and Melissa Pederson, "Religion in Museums for Families with Children," in *Religion in Museums: Global and Interdisciplinary Perspectives*, ed. Gretchen Buggeln, Crispin Paine, and S. Brent Plate (London: Bloomsbury Publishing, 2017), 197–204.

fig. 6.

An example of the FLORES rating for some of the objects used in *Sacred Journeys*.

FLORES Testing-Sacred Journeys

Object	1-recognizeable	2-object story	3- interaction	4-display	5-unique	6-aesthetic	Score
Dead Sea Scroll-Deut	2	7	4	5	7		62.84
Q'uran	7	4	4	7	4	3	68.54
Shroud of Turin	3	7	7	7	4	3	73.9
Ganesh	5	4	4	7	4	7	74.26
Potato Planting	4	5	5	7	4	7	76.76
Mezuzah	4	7	4	7	6	4	77.12
Western Wall	4	7	4	7	6	4	77.12
Kiswah/Mecca	4	7	4	7	5	6	79.62
Gutenberg Bible	5	7	5	7	6	4	81.4
Dalai Lama Throne	4	7	6	7	4	7	83.9

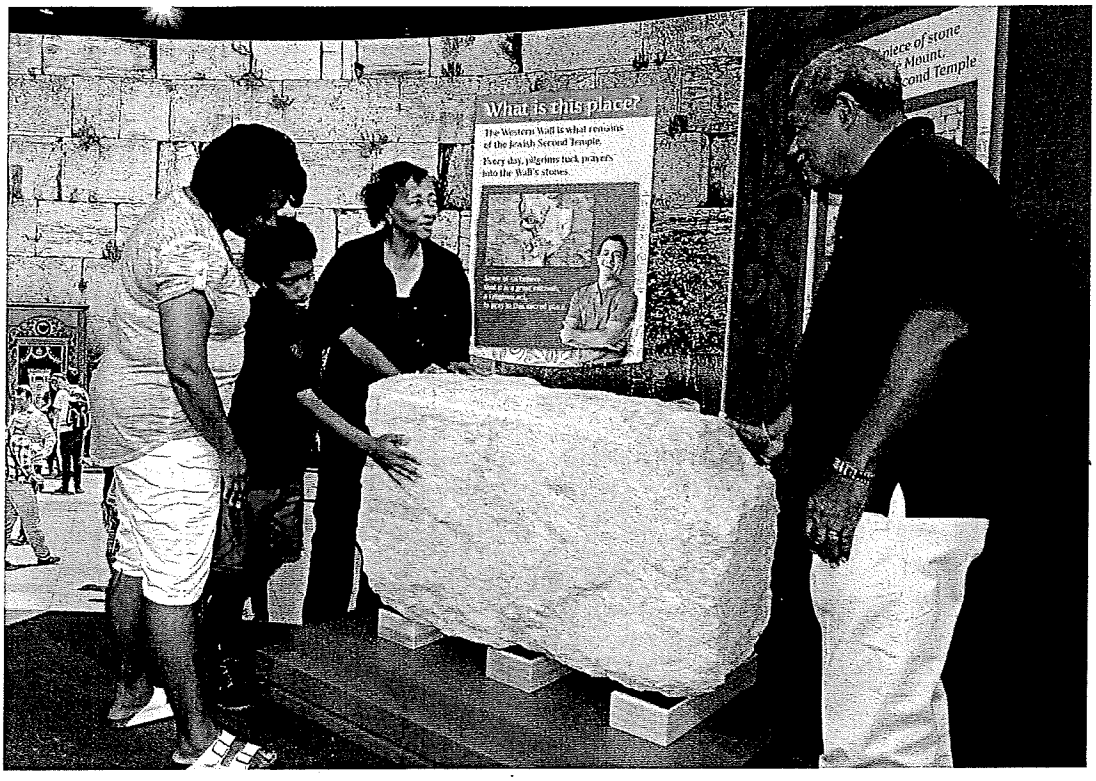


fig. 7.
Families interacting with a reproduction segment of the Western Wall in *National Geographic Sacred Journeys*.

to use the FLORES system to help planning teams understand more fully how visitors would react to certain objects and their potential to spark conversations about the objects. Using the tool also helped teams to think about the degree to which they felt the object worked to tell the story of each exhibition.

Our work has led designers and exhibit developers to look carefully at each object and consider how it could be used within the context of the exhibition beyond a simple case display. Thinking carefully about visitor interaction with objects in an exhibition has helped us increase the potential connections and learning value of those objects. Building on this knowledge ultimately enhances the meaning of the visitor's overall museum experience.

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Susan Foutz is Director of Research and Evaluation at The Children's Museum of Indianapolis. susanf@childrensmuseum.org
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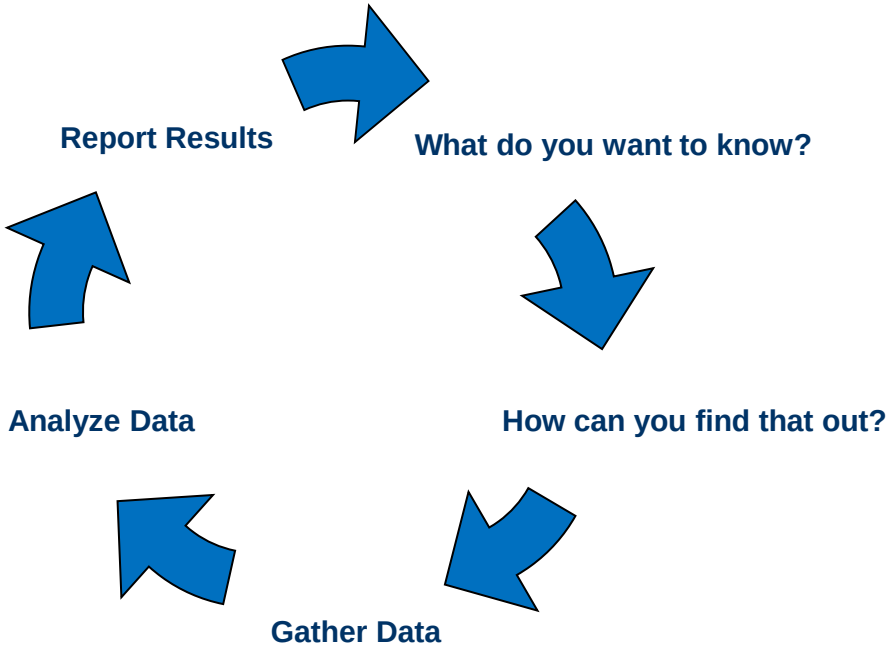
CHILDREN'S MUSEUM INDIANAPOLIS

Evaluation and the Exhibit Development Process

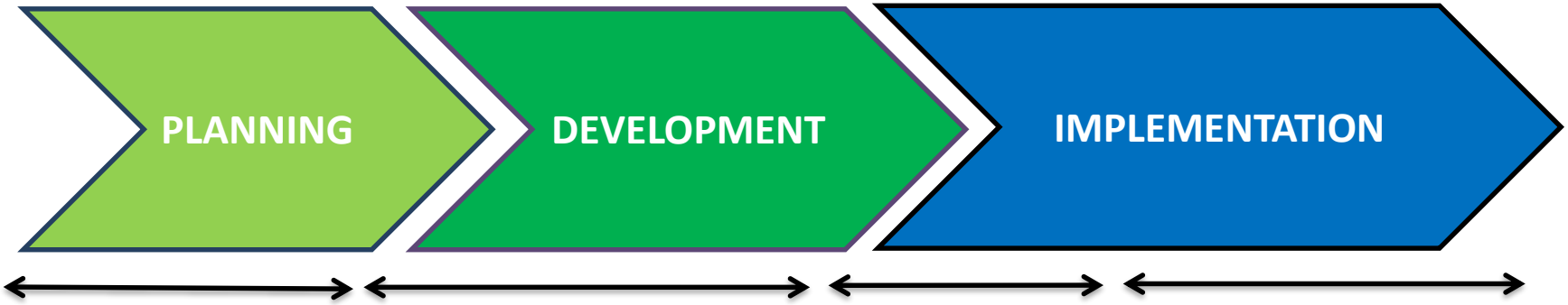
R&E Working Group

August 2022

Evaluation is a process for finding things out…



When do you do evaluation?



Front-end

-Idea Testing
-ID background knowledge

Formative

-Conceptual understanding
-Prototype testing
-ID improvements

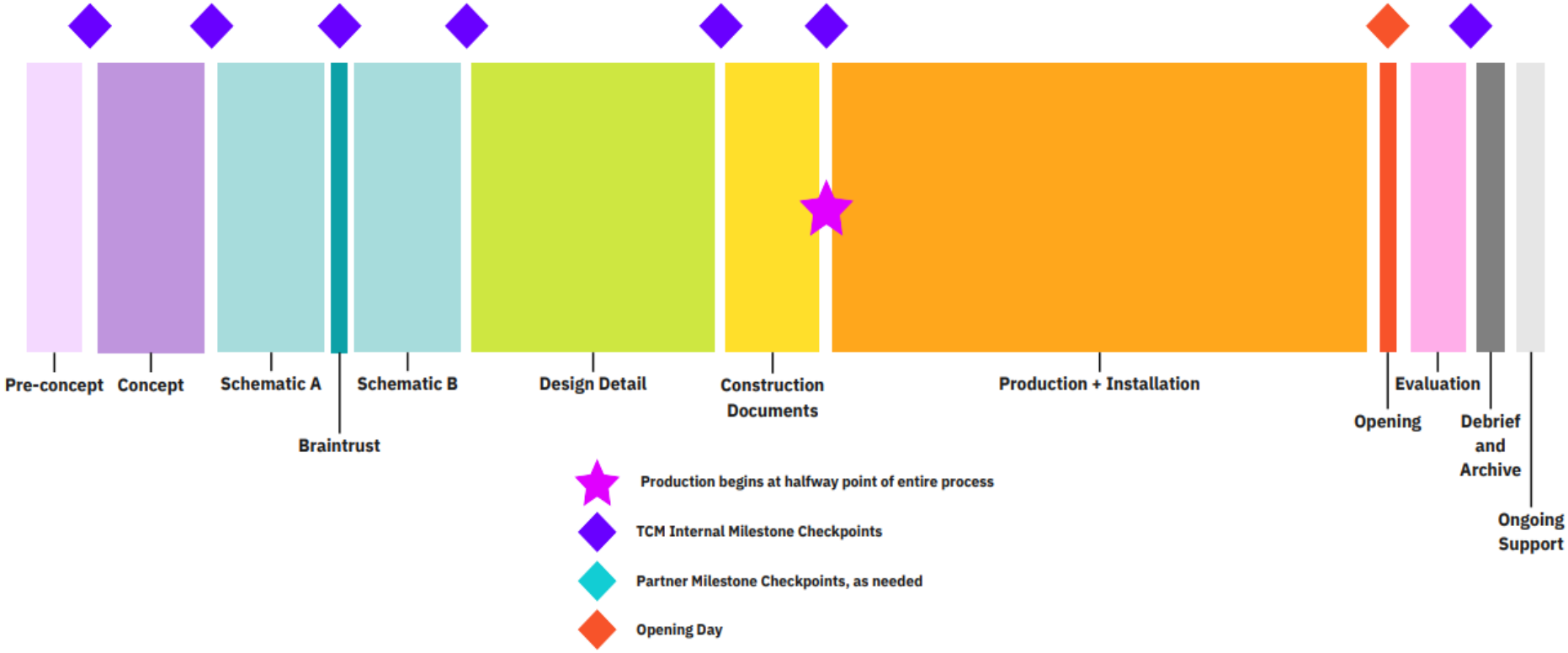
Remedial

-ID changes/ improvements
-Satisfaction/ engagement measures

Summative

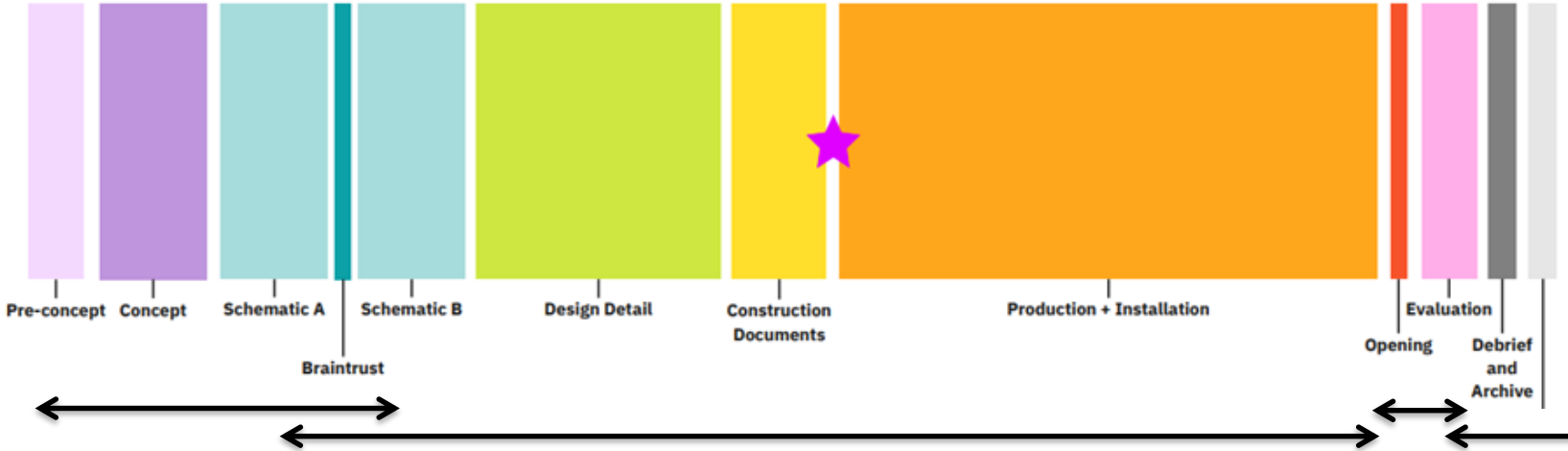
-Were goals achieved?
-How did visitors benefit?

Development, Design, and Production Timeline



Warning!! Limited Scope Alert!

The following examples detail the evaluation with external constituents, typically visitors or potential visitors to the museum. We did not outline other points of feedback from groups such as advisors, working groups, partners, etc.



Front-end

-Idea Testing
-ID background knowledge

Conceptual Formative

-Conceptual understanding
-Early Prototypes
-ID changes/ improvements

Contextual Formative

-Late-Stage Prototypes
-Usability of nearly completed elements
-Refine labels
-ID changes/ improvements

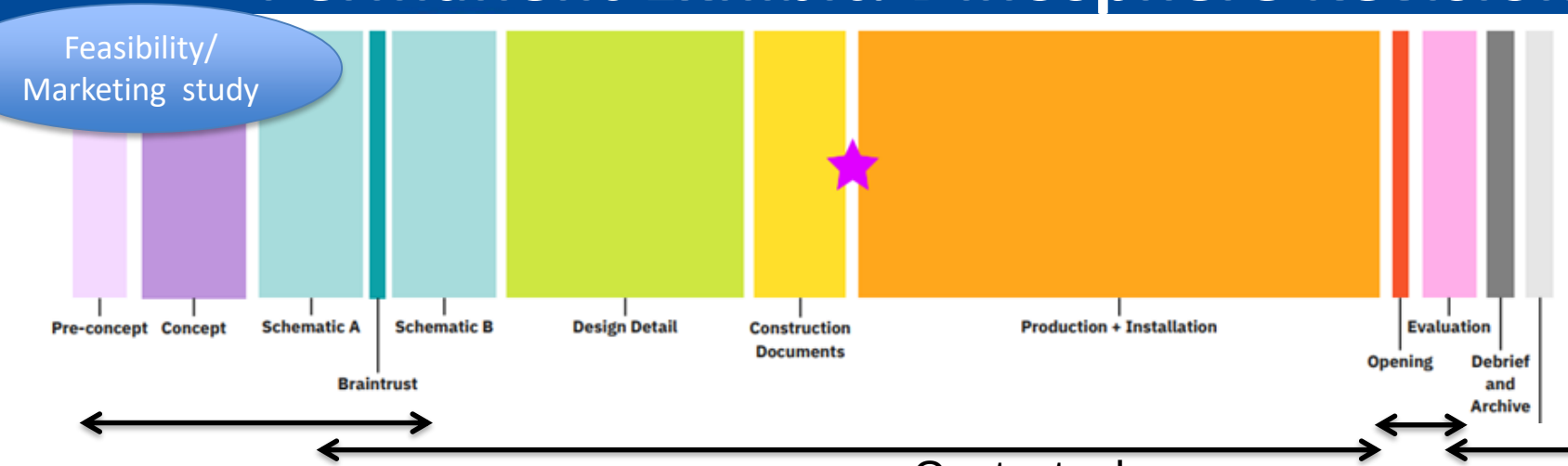
Remedial

-ID changes/ improvements
-Satisfaction/ engagement measures

Summative

-Were goals achieved?
-How did visitors benefit?

Permanent Exhibit: Dinosphere Revision



Front-end

- Usage of dome interactives (2016)
- Knowledge/interest in type of fossils that could be included in the exhibit (2018)
- Usage of ramp (Early 2020)
- Accessibility baseline survey (Spring 2021)

Conceptual Formative

(Dec 2020-Jan 2022)

- Sauropod S&L show concept; accessibility
- TOTE interactive; accessibility
- Sauropod bone puzzle x3; accessibility

Contextual Formative

(Jan-March 2022)

- Sauropod bone puzzle x1; accessibility
- Diplo digestion x1; accessibility
- Art Lab scanner x1; accessibility

Remedial

(March-Aug 2022)

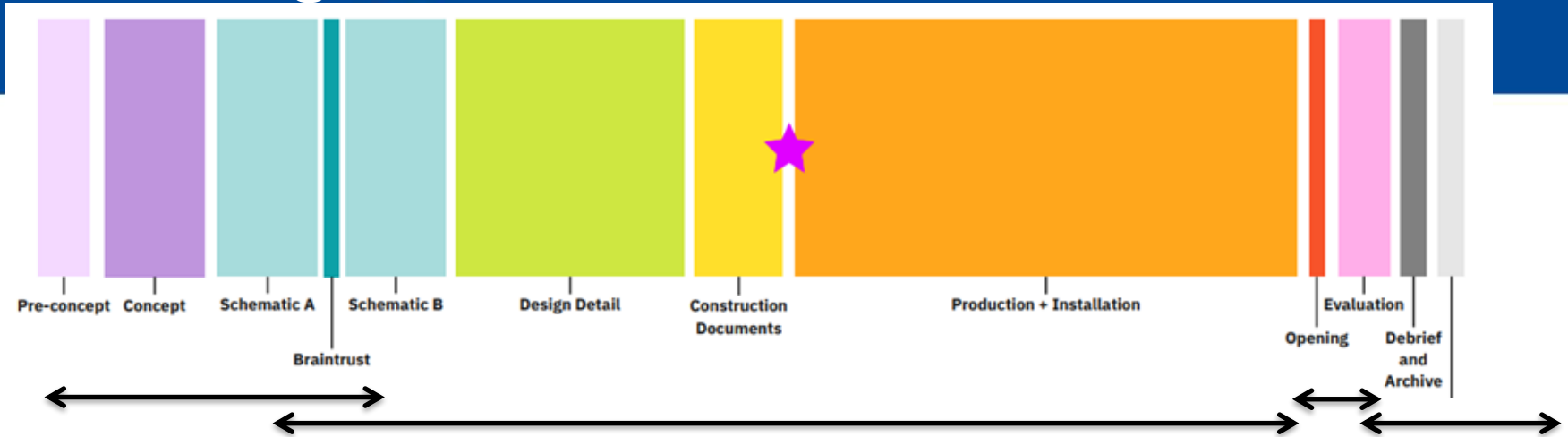
- All Interactives (Obs)
- Most Programs (Obs)
- Ramp: General and Shows (Obs)
- Satisfaction, expectations, use, impressions (Interviews)

Summative

(Sept 2022-Aug 2023)

Outcomes for visitors including accessibility audiences

Traveling Exhibit: Emmett Till & Mamie Till-Mobley



Front-end

- Ruby water fountain study in POC (July 2020)
- Call to Action FG with Host Venues (Oct 2020)
- Till awareness interviews at TCM (Dec 2020)
- National awareness survey, included Indy (Jan 2021)
- Local Connection ideas (Mar 2022)

Conceptual Formative

(May 2021-Aug 2022)

- MAP FG about concept
- Adult FGs Chicago/Miss/IN (historical panels)
- Family FGs IN (key panel content, Take Action content)
- Ripple word surveys
- S&L animatic Family FGs

Contextual Formative

(July-Sep 2022)

- Funeral monitor x2
- Trial sketchpad x2
- Make a ripple x1
- S&L show in situ x1

Remedial

(Sep-Oct 2022)

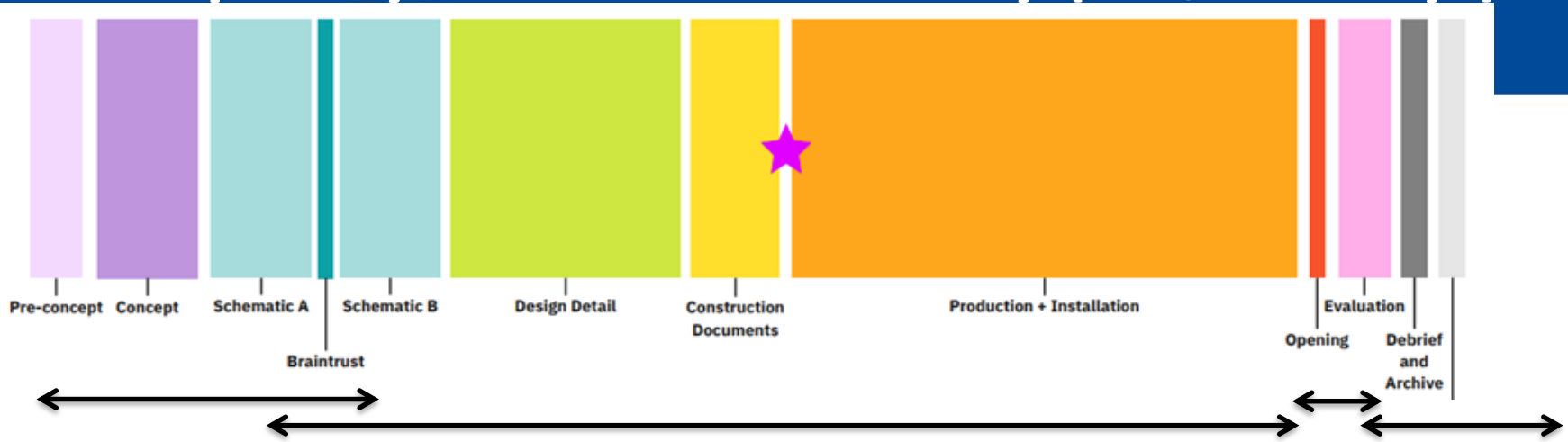
- All Interactives (Obs)
- All Programs (Obs)
- Satisfaction, expectations, use, impressions (Interviews)

Summative

(Oct 2022-Sep 2023)

Outcomes for visitors, TCM staff, ETIC staff, and other venue staff

Temporary Exhibit: Power Play (i.e., Hockey!)



Front-end

N/A: Team knew this would follow a similar "recipe" as the other sports temps; had to have something for newbies as well as players and fans

Conceptual Formative

(March-June 2022)

- Balance boards x2
- Faux ice x2; accessibility
- Fast or Friction x1

Contextual Formative

(Aug/Sept 2022)

Remedial

Oct/Nov 2022

- Interactives (Obs)
- Programs (Obs)

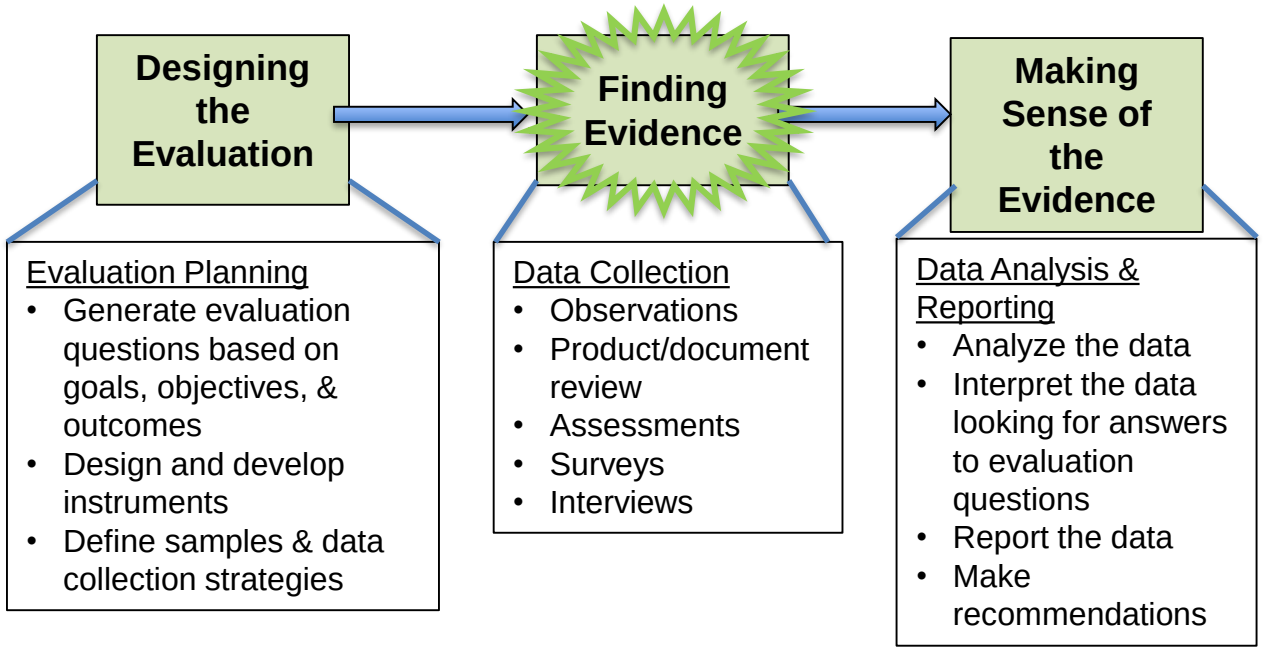
Summative

N/A: Unless grant-funded temporary exhibits typically do not have a summative

Discussion:

- What information about or from constituents do you need to do your job?
- What groups may be under-represented in the current process?
- What does an inclusive study (or process) look like?

Overview of the Evaluation Process



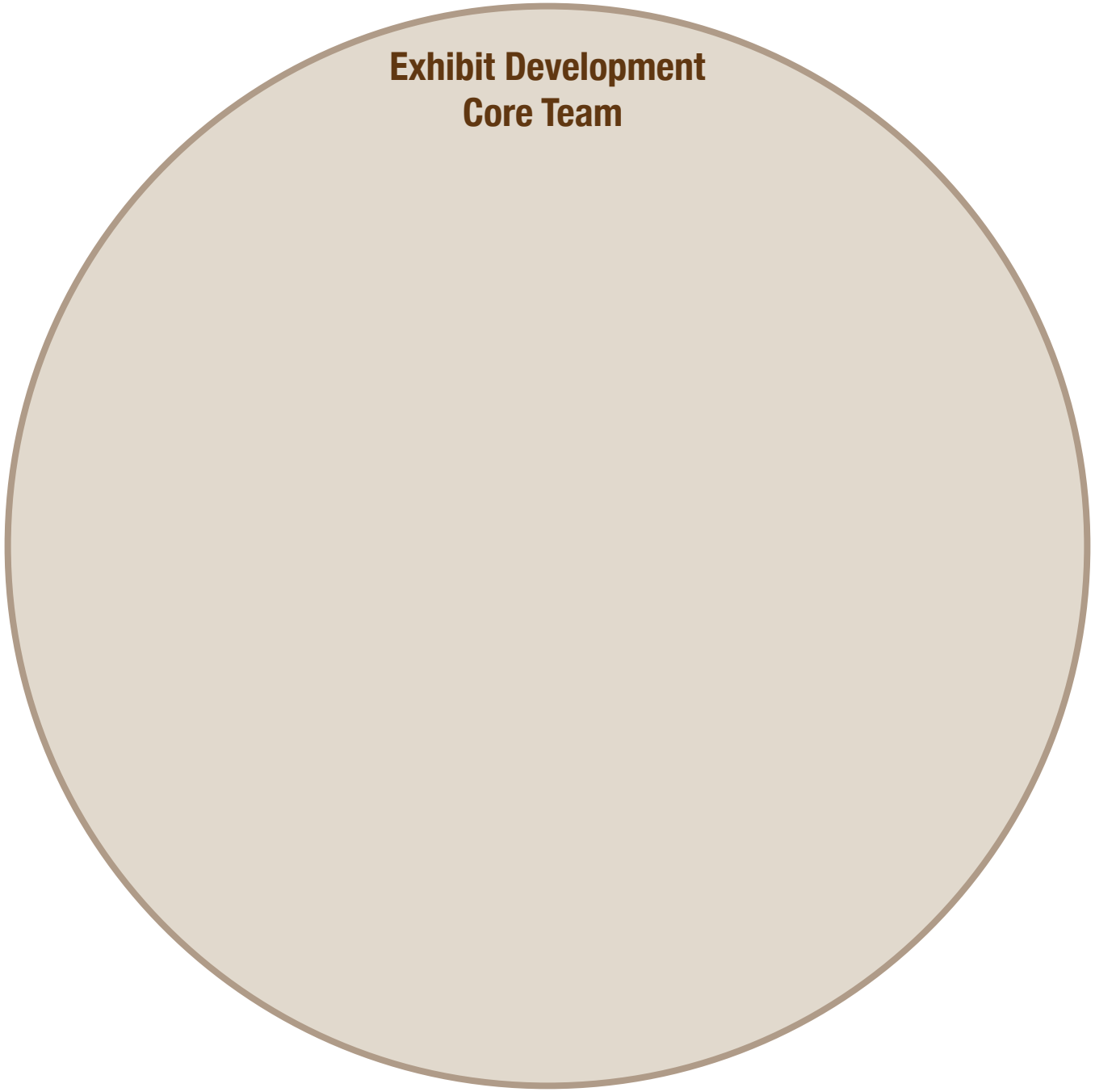


Exhibit Development
Core Team

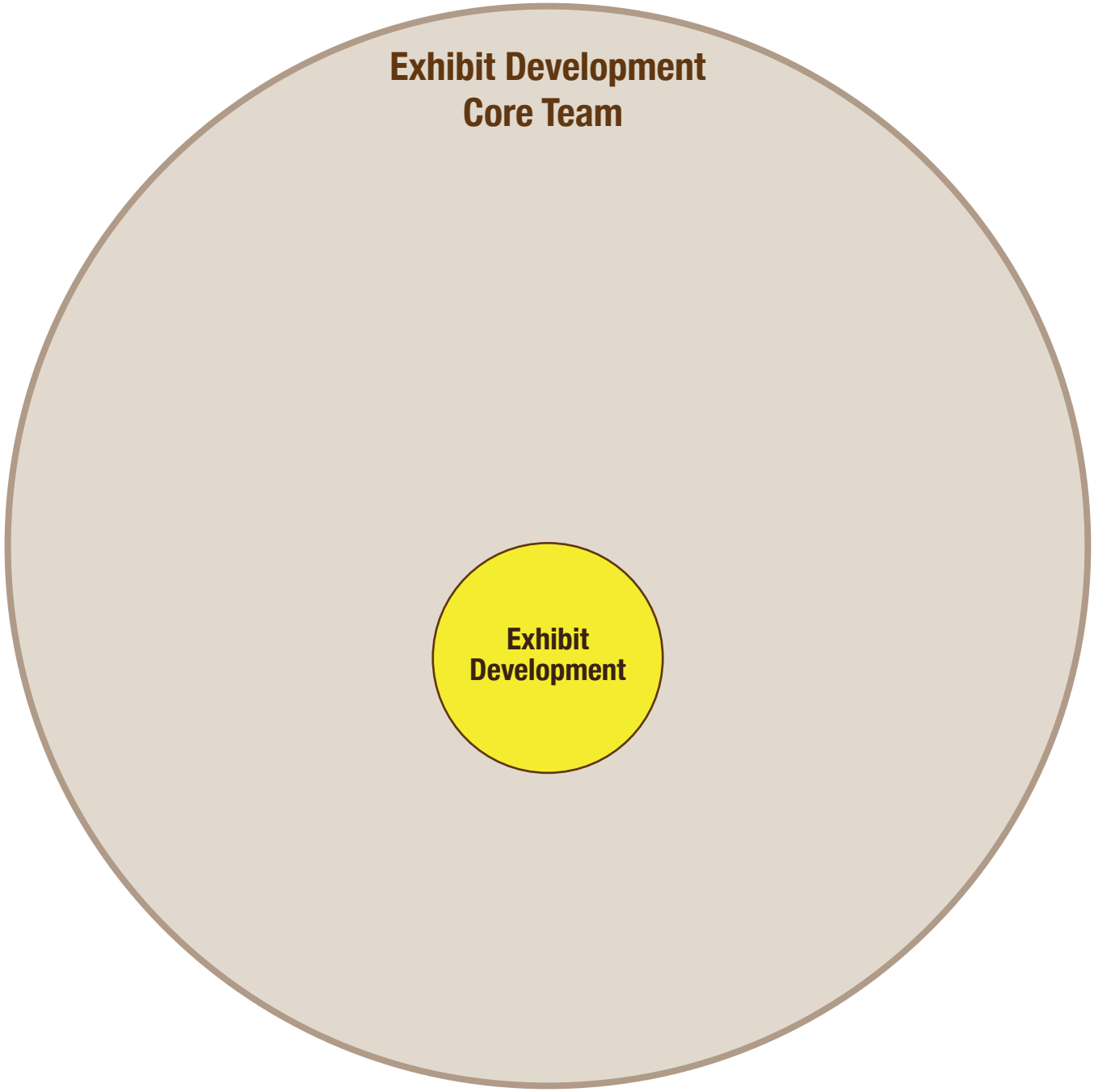


Exhibit Development
Core Team
Exhibit
Development


Exhibit Development
Core Team
Interpretation
Accessibility
Collections
3D Design
Graphic
Design
Experience
Production
Interactive
Media
Info.& Int.
Technology
Research &
Evaluation
School
Resources
Project Manager
Exhibit
Development


Exhibit Development
Core Team
Interpretation
Accessibility
School
Resources
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3D Design
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Production


Exhibit Development
Core Team
Interpretation
School Resources
Accessibility
Project Manager
Research & Evaluation
Collections
Exhibit Development
Info.& Int. Technology
3D Design
Interactive Media
Graphic Design
Experience Production

VISITOR MAP

Thank you to the museum's official partners:

Riley Children's Health Indiana University Health | IceMiller | Old National Bank | The Heritage Group

Featured Attractions

MANDELA THE OFFICIAL EXHIBITION

PRESENTED BY

OneAmerica Financial

Mandela: The Official Exhibition
Level 2

Lawyer. Revolutionary. Political prisoner. World leader. Elder statesman. Human rights icon. Global advocate for change. Nelson Mandela has been all these things to people across the world. *Mandela: The Official Exhibition* provides a unique opportunity for you to learn more about the iconic freedom fighter and political leader, Nelson Mandela.

Mandela: The Official Exhibition is produced by Round Room Live in partnership with The Royal House of Mandela (RHoM) and RHoM Investments.

nickelodeon TEENAGE MUTANT NINJA TURTLES SECRETS OF THE SEWER

PRESENTED BY

Central Indiana Honda Dealers

HONDA

SUPPORTED BY

F.A. WILHELM

Teenage Mutant Ninja Turtles™: Secrets of the Sewer™
Level 2

Join these pizza-eating, crime-fighting "Heroes in a Half-Shell" to hone your ninja skills and problem-solving intellect while learning the secrets of the sewer!

Riley Children's Health Indiana University Health SPORTS LEGENDS EXPERIENCE®

The Riley Children's Health Sports Legends Experience® is made possible through lead gift support from The Enid Goodrich Educational Initiatives Fund; Riley Children's at Indiana University Health; The Herbert Simon Family Foundation/Pacers Foundation/The Herbert and Bui Simon Foundation; Old National Bank; Lilly Endowment Inc.; Efroymson Family Fund; Henry and Christine Camferdam; The Children's Museum Guild; Elizabeth Bracken Wiese and J. Frederic Wiese Jr.; Indianapolis Colts; NCAA; Ice Miller LLP; Dr. and Mrs. George Rapp, Dr. and Mrs. John Rapp, and Mr. James and Dr. Patricia Rapp.

Riley Children's Health Sports Legends Experience®
Entrance to outdoor experiences through the Welcome Center, Level 1

All ages can run, putt, pass, play, and enjoy a variety of accessible, "my-size" sports experiences for families. Explore an interactive athletics wonderland and discover your strengths in a new sport or learn about a sport you love in a whole new way.

The *Riley Children's Health Sports Legends Experience* is included with museum general admission and membership!

Customer Service: 317-334-4000

What to Do...

Lower Level

All Aboard!
Beyond Spaceship Earth
Dinosphere®
Fireworks of Glass
Lilly Theater
National Geographic Treasures of the Earth

Level 1

Dinosphere®
Food Court
Museum Store
National Geographic Treasures of the Earth
Riley Sports Legends Experience®
National Art Museum of Sport
The World of Sport
Water Clock
Welcome Center

Level 2

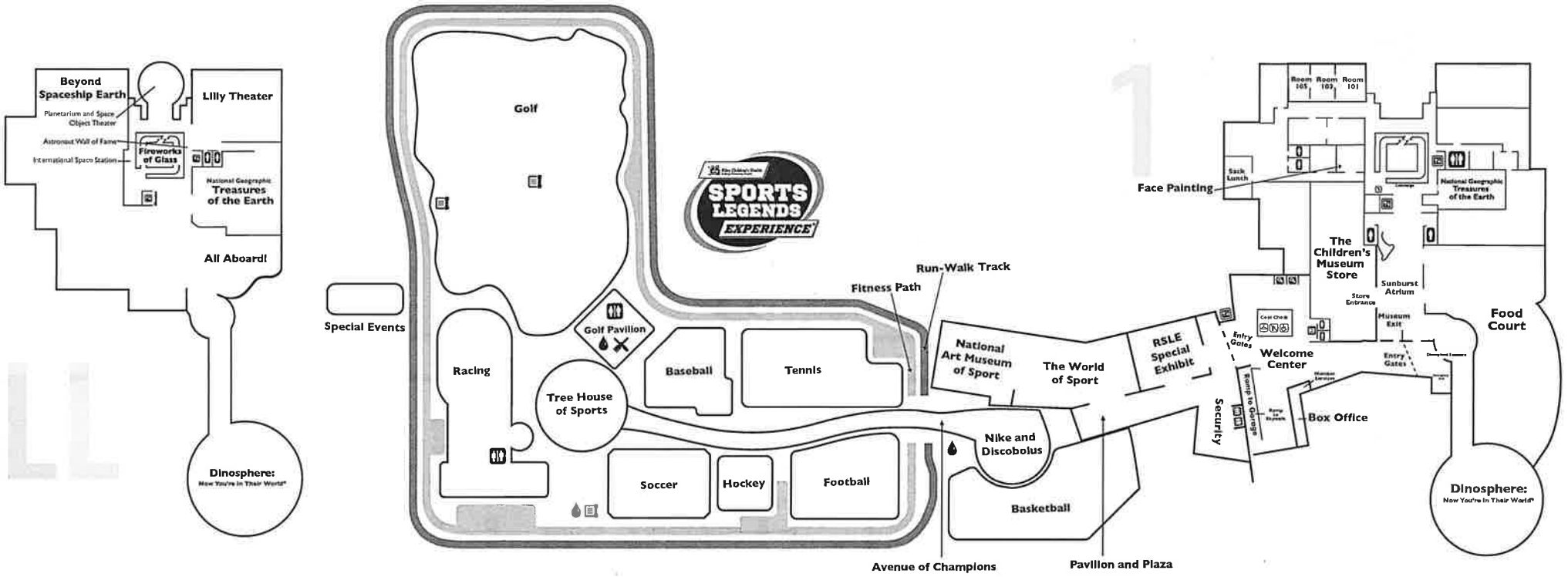
American POP
Dinosphere Art Lab
Dracorex hogwartsia
infoZone
Stories from Our Community
Take Me There®: Greece

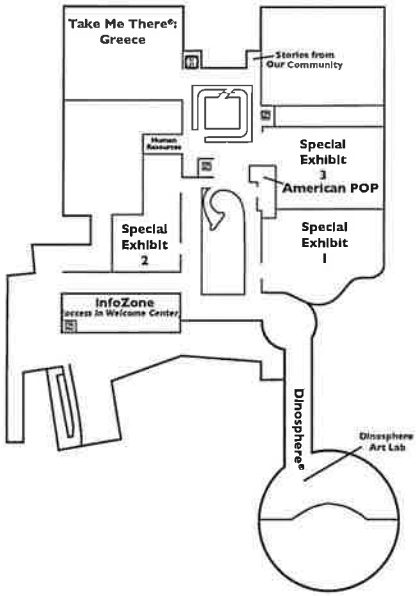
Level 3

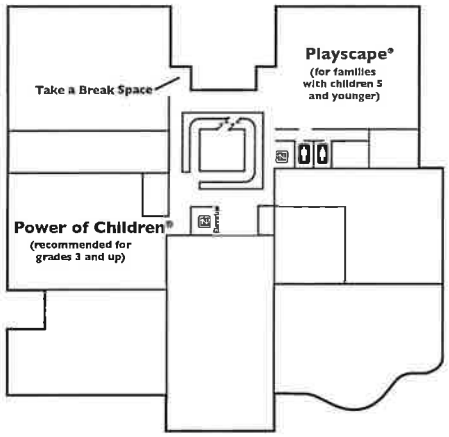
Playscape®
The Power of Children®
Race Car

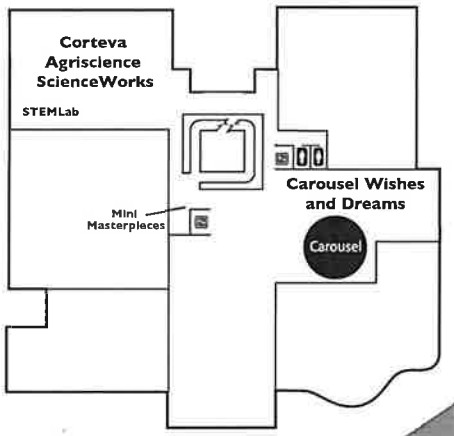
Level 4

Carousel Wishes and Dreams
Corteva Agriscience ScienceWorks
Mini Masterpieces









Level 1

- *Riley Sports Legends Experience®* Special Exhibit—*Power Play*

Level 2

- Special Exhibit 1—*Teenage Mutant Ninja Turtles™: Secrets of the Sewer™*
- Special Exhibit 2—Closed for special events.
- Special Exhibit 3—*Mandela: The Official Exhibition*

CHILDREN'S MUSEUM INDIANAPOLIS®

Featured Programs

July 1–Aug. 11, 2024

We offer a variety of programs in every gallery space, designed to encourage families to explore and play together!

Dinosphere®, Lower Level

Up Close in the Cretaceous: Join us to examine fossil clues to explore what life was like for these prehistoric creatures.
10:30 a.m., 2:30 and 3:30 p.m. daily

***Mesozoic Marine Deep Dive:** Explore the ancient seas and the spectacular giants that lived there in an underwater family investigation.
11:30 a.m. and 1:30 p.m. daily

Dino Tales: Experience the true story of a groundbreaking paleo discovery through this engaging live performance!
12:30 p.m. daily

Dinosphere® ART LAB, Level 2

***Dinos Alive!:** Follow a step-by-step process to design a family of dinosaurs that come to life on the projection screen.
11:30 a.m., 1:30 and 3:30 p.m. daily

Treasures of the Earth, Lower Level

Terra Cotta Warriors Up Close and Personal: Discover the secrets of the Terra Cotta Warriors that have been buried for thousands of years.
11 a.m. and 2:30 p.m. daily

Beyond Spaceship Earth, Lower Level

^***CAPCOM Go!: The Apollo Story*:** What did it take to put humans on the moon? Discover the story of the Apollo missions.
10:30 a.m., 12:30 and 4:30 p.m. daily

***Mission Control Team Takeover:** Join NASA's Mission Control to run a flight simulation for a mission to the moon!
11:30 a.m. and 2:30 p.m. daily

^**Dee O'Hara: Reach for the Stars:** Experience the story of America's first astronauts through the eyes of aerospace nurse, Dee O'Hara.
1:30 and 3:30 p.m. daily

Teenage Mutant Ninja Turtles™: Secrets of the Sewer™, Level 2

***Ninja Academy:** Put your skills and teamwork to the test to navigate a series of mental and physical challenges.
11 a.m. and 3 p.m. daily

***Inventor Workshop:** The Turtles Team needs your help! Use everyday objects to design a working spybot to spy on the evil Kraang!
Noon and 2 p.m. daily

Mandela: The Official Exhibition, Level 2

^**Mandela: Through His Own Words:** Through the use of Nelson Mandela's own words, discover the rich, complicated history of South Africa and life of Mandela.
Noon and 2 p.m. daily

Take Me There®: Greece, Level 2

A Taste of Greece: Discover how food is a common thread throughout Greek life as well as celebrations!
11 a.m. daily

Greek Dance!: Experience a traditional Greek Folk Dance and join us on the dance floor!
Noon daily

^**Make Your Myth: Art Workshop:** Create a work of art based on a favorite family story!
2 p.m. daily

Playscape®, Level 3

For children age 5 and under and families

^**Experiencing Art Together:** Big hands and little hands, get ready for some hands-on art fun!
11 a.m. and 2 p.m. daily

^**Making Music Together:** Join us to make some music and engage your mind and body.
Noon and 3 p.m. daily

The Power of Children®, Level 3

^**In Their Shoes:** Put yourself in the shoes of a child who changed history through this immersive experience.
11:30 a.m. daily

^**Change Makers: Superhero in YOU!:** Become an everyday superhero and use your power to make a difference by designing Superhero You!
12:30 p.m. daily

^**Voices of Hope:** Discover how one inspirational child served as an example of overcoming discrimination and intolerance that made a positive difference in the world today.
1:30 p.m. daily

Corteva Agriscience ScienceWorks, Level 4

Life in the Pond: See the live animals that live in our pond and learn how they support each other in their ecosystem while witnessing a live animal feeding.
11 a.m. and 2 p.m. daily

**Tickets must be obtained in person by standing in a queue line in the exhibit.*
^Space is limited. Programs are on a first come, first-served basis.

Program times are subject to change; see gallery signage for the most up-to-date information.

Daily Offerings

10:30 a.m.: Up Close in the Cretaceous—*Dinosphere®*

^10:30 a.m.: *CAPCOM Go!: The Apollo Story*
Beyond Spaceship Earth

10:30 a.m.: Mighty Muscle Movers
Riley Children's Health Sports Legends Experience®

11 a.m.: Celebration Dance Party!—Sunburst Atrium

11 a.m.: Fossil Discoveries - Jurassic Giants—*Dinosphere®*

11 a.m.: Terra Cotta Warriors—*Treasures of the Earth*

***11 a.m.: Ninja Academy**
Teenage Mutant Ninja Turtles™: Secrets of the Sewer™

11 a.m.: A Taste of Greece—*Take Me There®: Greece*

^11 a.m.: Experiencing Art Together—*Playscape®*

11 a.m.: Life in the Pond
Corteva Agriscience ScienceWorks

11 a.m.: The Thrill of the Game
Riley Children's Health Sports Legends Experience®

***11:30 a.m.: Mesozoic Marine Deep Dive**—*Dinosphere®*

***11:30 a.m.: Mission Control Team Takeover**
Beyond Spaceship Earth

***11:30 a.m.: Dinos Alive!**—Dinosphere Art Lab (LV 2)

^11:30 a.m.: In Their Shoes—*The Power of Children®*

11:30 a.m.: Hammerin' Hank Aaron Legendary Challenge
Riley Children's Health Sports Legends Experience®

***Noon: Inventor Workshop**
Teenage Mutant Ninja Turtles™: Secrets of the Sewer™

^Noon: Mandela: Through His Own Words
Mandela: The Official Exhibition

Noon: Greek Dance!—*Take Me There®: Greece*

^Noon: Making Music Together—*Playscape®*

12:30 p.m.: Dino Tales—*Dinosphere®*

^12:30 p.m.: *CAPCOM Go!: The Apollo Story*
Beyond Spaceship Earth

^12:30 p.m.: Change Makers: Superhero in YOU!
The Power of Children®

12:30 p.m.: Barbara Wynne Tennis Challenge
Riley Children's Health Sports Legends Experience®

12:45 p.m.: Water Clock—Sunburst Atrium

1 p.m.: Fossil Discoveries – Surviving the Mesozoic
Dinosphere®

***1:30 p.m.: Mesozoic Marine Deep Dive**—*Dinosphere®*

^1:30 p.m.: Dee O'Hara: Reach for the Stars
Beyond Spaceship Earth

***1:30 p.m.: Dinos Alive!**—Dinosphere Art Lab (LV 2)

^1:30 p.m.: Voices of Hope—*The Power of Children®*

1:30 p.m.: Tamika Catchings Legendary Challenge
Riley Children's Health Sports Legends Experience®

2 p.m.: Dino-motion Challenge—Sunburst Atrium

***2 p.m.: Inventor Workshop**
Teenage Mutant Ninja Turtles™: Secrets of the Sewer™

^2 p.m.: Mandela: Through His Own Words
Mandela: The Official Exhibition

^2 p.m.: Make Your Myth—*Take Me There®: Greece*

^2 p.m.: Experiencing Art Together—*Playscape®*

2 p.m.: Life in the Pond
Corteva Agriscience ScienceWorks

2:30 p.m.: Up Close in the Cretaceous—*Dinosphere®*

2:30 p.m.: Terra Cotta Warriors—*Treasures of the Earth*

***2:30 p.m.: Mission Control Team Takeover**
Beyond Spaceship Earth

3 p.m.: Celebration Dance Party!—Sunburst Atrium

***3 p.m.: Ninja Academy**
Teenage Mutant Ninja Turtles™: Secrets of the Sewer™

^3 p.m.: Making Music Together—*Playscape®*

3 p.m.: Artist in You
Riley Children's Health Sports Legends Experience®

3:30 p.m.: Up Close in the Cretaceous—*Dinosphere®*

***3:30 p.m.: Dinos Alive!**—Dinosphere Art Lab (LV 2)

^3:30 p.m.: Dee O'Hara: Reach for the Stars
Beyond Spaceship Earth

^4:30 p.m.: *CAPCOM Go!: The Apollo Story*
Beyond Spaceship Earth

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^Space is limited. All programs are on a first come, first-served basis.
Program times are subject to change; see gallery signage for the most up-to-date information.
Program times are updated daily on our website at childrensmuseum.org/visit/calendar.

CHILDREN'S MUSEUM INDIANAPOLIS

CORTEVA agriscience
STEMLab

CHILDREN'S MUSEUM INDIANAPOLIS®

You Can Make an Edible Cell at Home!

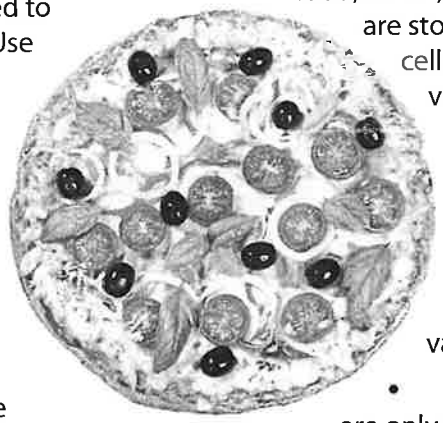
Cell Pizza

For an animal cell, use a premade round pizza crust or a tortilla.

For a plant cell, roll out refrigerated breadstick or pizza dough into a rectangle.

Organelles and Suggestions

- **Cytoplasm:** The cytoplasm is the jelly that surrounds all the organelles in the cell. Use sauce for your cytoplasm.
- **Nucleus:** The nucleus is the "control center" for the cell. The nucleus contains the chromosomes, which are made of DNA. DNA is the instruction manual for the cell to make everything the body needs. In most animal cells, the nucleus is near the center. In plant cells, the nucleus is often pushed to the side by vacuoles. Use something large and round, such as a slice of tomato, eggplant, ham, or salami for your nucleus.
- **Ribosomes:** Ribosomes are like little factories that make proteins for the cell. Ribosomes can be found either free in the cell, or on the rough endoplasmic reticulum. Use something small but colorful to represent ribosomes such as minced green onions, chopped herbs, or bacon bits. Sprinkle a your chosen ingredients around the cell and push them to set them in.
- **Mitochondria:** Mitochondria are often called the "powerhouse" of the cell. These organelles have their own circular DNA and are the site of aerobic respiration, which produces ATP, the energy your cell needs to survive. These are found throughout the cell. Bits of sausage or olive, or even black beans can represent the mitochondria in the cell.



- **Golgi bodies:** Golgi bodies are a series of stacked sacs that process and package the lipids and proteins made in the cell. Try using peppers or even pineapple! They are often depicted near the nucleus, but can be anywhere in the cell.
- **Endoplasmic reticulum:** Sometimes called the ER, these organelles are a series of tubes that carry the lipids and proteins to the cell membrane. They can be rough or smooth. Rough ER has ribosomes on it, and makes proteins and sends them to the Golgi bodies for packaging. You can use sliced mushrooms or peppers for ER. Make a smooth (without ribosomes) and a rough (with ribosomes).
- **Vacuole:** Vacuoles contain many things: food, waste, enzymes and water. They are storage sites in the cell. Plant cells usually have large central vacuoles, while animal cells have smaller ones throughout the cell. You can use any food that looks like a pocket to you, like curved slices of pepperoni, or even put in an empty space for the vacuole—be creative.
- **Chloroplasts:** Chloroplasts are only found in plant cells, so don't use them if you're making an animal cell! Chloroplasts contain green pigment called chlorophyll, and are needed for photosynthesis. Photosynthesis is the process a plant uses to make food from sunlight. Use green peppers, green olives, or green onions for chloroplasts, but only in the plant cells!
- **Membrane and cell wall:** Every cell has a membrane, which acts as a skin, letting good things in and keeping bad things out. The membrane is made of fats, or lipids, and proteins. Plant cells also have a cell wall, which is stronger and thicker. You can press herbs or cheese around your crust to form the wall and membrane!

CORTEVA agriscience
STEMLab

Make Cheese!

We can learn about enzymes and biotechnology by making cheese! According to legend, cheese was discovered thousands of years ago by a shepherd carrying goat's milk in a pouch made from a goat's stomach. A substance in the lining of the goat's stomach called rennet contains an enzyme, chymosin, which coagulates milk. During the shepherd's travels, heat from the sun activated the enzyme in the goat's stomach and turned the milk into curds and whey. Whey is a thin liquid, and curds are chunks of cheese.

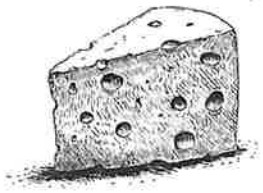
Today, instead of using the lining of a goat's stomach to make cheese, we can make the enzyme using genetically engineered bacteria in the lab. This is biotechnology—the use of living things as tools! We can make our own cheese using a rennet tablet, milk, heat, and a few other simple materials.

To do this experiment you will need:

- 1 gallon crock pot
- 1 gallon pitcher
- 3 packets nonfat instant milk (enough to make 3 quarts)
- 9 cups warm water
- 4 cups buttermilk
- ½ rennet tablet (we recommend doing an online search for distributors if you cannot find this at your local grocer)
- ¼ cup cool water
- Cheesecloth (we recommend doing an online search for distributors if you cannot find this at your local grocer)
- Thermometer
- Colander

Optional:

- Half-and-half
- Herbs
- Crackers
- ½ tsp. Salt



1. Prepare nonfat instant milk by filling a pitcher/container with 4½ cups of warm water. Pour in nonfat instant milk and stir to dissolve. Fill the pitcher/container with the remaining 4½ cups of water.
2. Add buttermilk (room temperature) to the crock pot and turn on high. Buttermilk increases the acidity and helps the enzyme work well.
3. Fill the remainder of the crock pot with the nonfat instant milk prepared above, and leave about 1 inch of headroom in the crock pot. You may have a little instant milk left over. Stir until temperature of the mixture reaches 90°F, then turn the crock pot off.
4. Dissolve ½ rennet tablet in ¼ cup cool water. Rennet contains the enzyme that will turn the milk into curds.
5. Add rennet solution to crock pot mixture and stir in an up and down motion for two minutes. (Stirring in a circular motion slows the enzyme down.)
6. If mixture is still at 90°F, leave the crock pot off. Otherwise, bring the temperature back up to 90°F and turn the crock pot off.
7. Put the lid on the crock pot and let sit for 40–45 minutes or until the milk forms a solid curd that shows a clean break. If curd is like soft yogurt, wait a little longer.
8. Once the curd is somewhat firm, use a knife to break the curd into smaller chunks. This part is not critical as stirring will further break up the curd. Turn the crock pot on high and stir slowly and gently in an up and down motion. The curds and whey (liquid portion) will separate. Stir enough to make sure the curds are not sticking together.
9. Once a temperature of 102°–105°F is reached, turn off the heat. Do not let the temperature go over 105°F. Stir for about five more minutes.
10. Line the colander with cheesecloth and put over the sink. Pour the mixture into the colander and let the whey drain for about five minutes. Rinse the curds in cool water to remove more of the whey.
11. Wrap cheesecloth around curds and press out the whey. Put the cheese in a small bowl and break up or cut with a fork to look like cottage cheese.
12. If you want, add ½ teaspoon of salt, a small amount of cream, and herbs for flavor. Serve your cheese on crackers. Store the cheese in your refrigerator. It is also good for dishes such as lasagna or crumbled on salad.

Adapted from Utah Education Network, "Cheesy Tool...Biotechnology," by William Deimler.

CHILDREN'S MUSEUM INDIANAPOLIS

View of Learning, Exploration, and Play

Boston Children's Museum believes that exploration and play are critical for children's healthy development and learning. It employs a child-centered approach to creating engaging, varied learning experiences that prioritize exploration and play. The Museum uses the following descriptions to characterize learning, exploration, and play.

Learning is an active, multi-sensory process directed by the learner that occurs over time and across the lifespan. It is constructed by connecting new experiences with previous experiences, building on and developing skills and understandings about the individual and the world. Influenced by social and cultural factors, learning occurs through interactions with people, objects, ideas, and the environment.

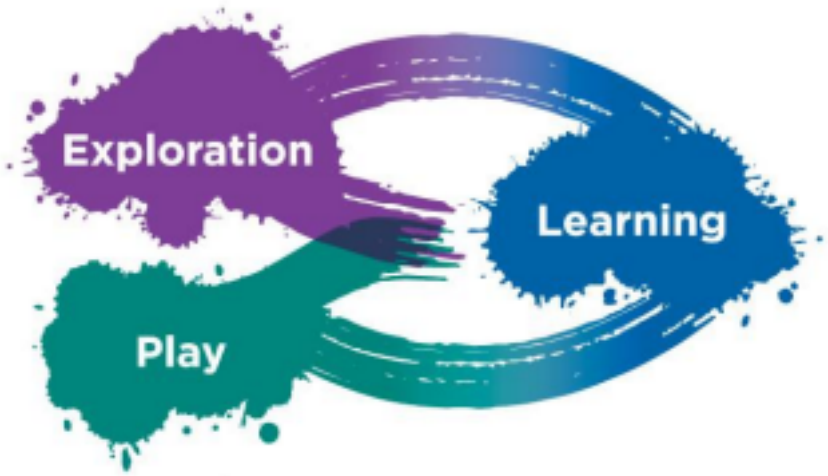
The Museum prioritizes exploration and play as two essential processes for learning.

Exploration is a method of engaging with and understanding the world through inquiry and examination of materials, objects, and phenomena. Prompted by curiosity and wonder, children use their senses to investigate the environments around them, gathering information from and about the physical, social, cultural, and emotional world.

Play is a way for children to develop their interests, capabilities, and lifelong learning skills. It is freely chosen, personally directed, intrinsically motivated, and enjoyable. It is a subjective experience in which

the individual playing decides whether or not it was successful. Though understood and valued differently across cultures, play is an activity that all children engage in, and is critical to healthy development.

Exploration and play are essential expressions of childhood. They are connected, yet distinct, processes that lead to learning, and often appear to be simultaneous and seamless with children moving knowingly and unknowingly between the two. Both exploration and play cross developmental domains (social, emotional, cognitive, and physical), change with development, and are often guided and shaped by adults and the environment.



Graphic to represent the relationship among exploration, play, and learning

The Museum places a premium on creating developmentally meaningful experiences that use exploration and play to support children's learning. Its experiences also encourage many other ways people learn, from reading and drawing to listening and observing. Exploration, play, and other processes for learning are supported through Museum experiences, and serve as a valuable complement to the learning that occurs in the classroom, at home, and in out-of-school time.

HOURS

Please check our website for current hours.
Advance/online tickets recommended.

Operating hours and dates (especially holidays and vacation weeks) are subject to change. Visit our website for details and reservations.

VISITOR SERVICES

ACCESSIBILITY
Ask any staff member for assistance. Visit the Admissions Desk for assistive listening devices, sound-reducing earmuffs, and wheelchairs. Stop by the Information Desk for large print maps and other accessibility information.

FOOD AND DRINK
Food and beverages are welcome in the 1st Floor Lunch Room. No food or drink allowed in exhibits. Please consider leaving nuts and nut butters at home. BostonChildrensMuseum.org/allergy-awareness.

BABY CHANGING TABLES IN EVERY RESTROOM
Health regulations require that all diaper changing be done in restrooms.

COAT/BAG STORAGE
1st Floor Coat Room and Lockers.

LOST AND FOUND
1st Floor Information Desk.

NURSING
Please feel free to nurse anywhere in the Museum.
A private nursing room is available in *PlaySpace*.

PARKING — DISCOUNTED
Farnsworth Street and Stillings Street Garages offer discounts for Museum visitors. Atlantic Wharf Garage offers discounts on weekends only. Validations are given at the Information Desk.

STROLLER PARKING
1st Floor Coat Room.

UNACCOMPANIED ADULT POLICY
Adults unaccompanied by children are required to leave a photo ID at the Admissions Desk during their visit.

FOOD OPTIONS

CITY TAP HOUSE BOSTON
Family-friendly upscale American pub just a few blocks away! www.CityTap.com

PASTORAL
Come join us for authentic Neapolitan pizza in a welcoming children's environment. Gluten free/Vegan options. Enjoy 10% off your food purchase with your Museum admission receipt. www.pastoralfortpoint.com

THE SMOKE SHOP BBQ
Andy Husband's famous American BBQ with a kid's menu and family-style hospitality. www.thesmokeshopbbq.com

You are welcome to eat food from home in the Museum's 1st Floor Lunch Room or dine outside on the Milk Bottle Plaza. Food is available at the Milk Bottle on a seasonal basis.

MORE TO DO

CORPORATE CONNECTIONS MEMBERSHIP
Invest in a unique benefit for your employees, partners, and clients by inviting them to experience Boston Children's Museum through a Corporate Connections membership. To inquire and for more information, email Corporate@BostonChildrensMuseum.org

CORPORATE EVENTS AND FUNCTIONS
Take the monotony out of meetings, corporate events, holiday parties, and weddings by hosting your next event at the Museum. To inquire or to book your party, call (617) 986-3647 or email Events@BostonChildrensMuseum.org

GROUP EXPERIENCES
Arrange a special experience for school and community groups. Please call (617) 426-6500 ext. 405 or email GroupVisits@BostonChildrensMuseum.org

MUSEUM COLLECTIONS AND ARCHIVES
Explore cultural materials, natural history specimens, and archives in exhibit and window displays. To learn more please visit www.BostonChildrensMuseum.org/collections

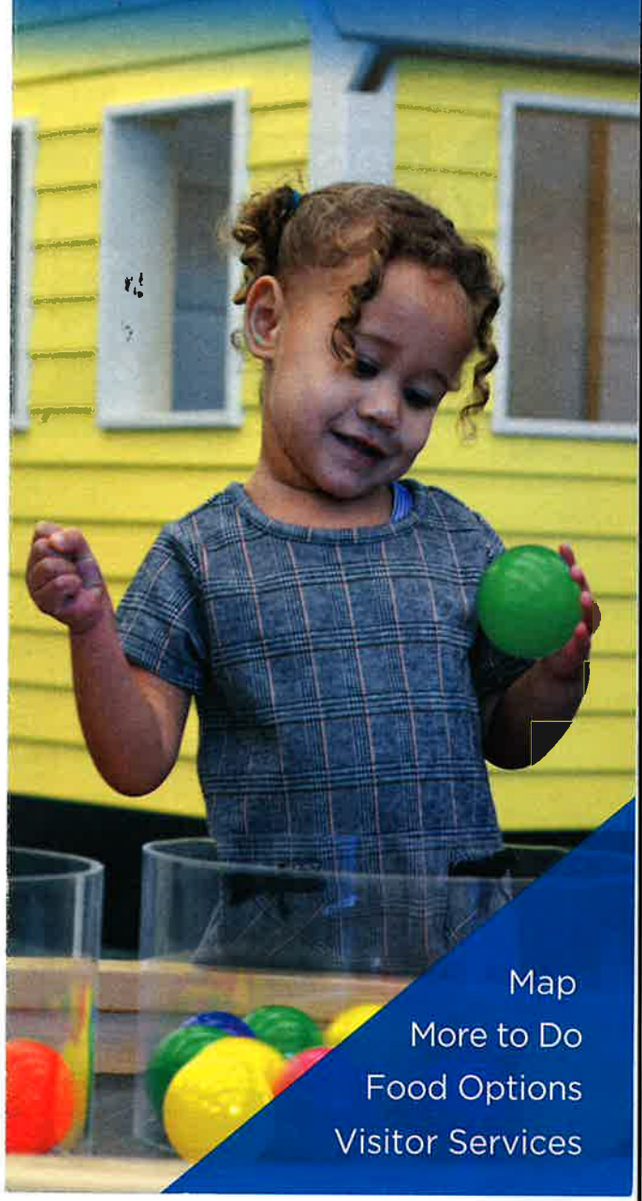
PROGRAMS AND EVENTS
Whatever your age, Boston Children's Museum provides activities to spark your imagination. Check out our daily calendar of programs and events, or visit us at www.BostonChildrensMuseum.org/calendar

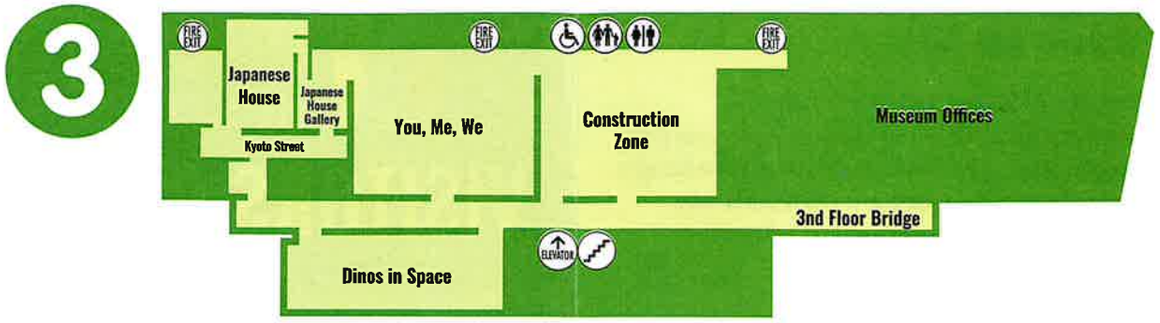
Sponsored by:
MCC
massculturalcouncil.org

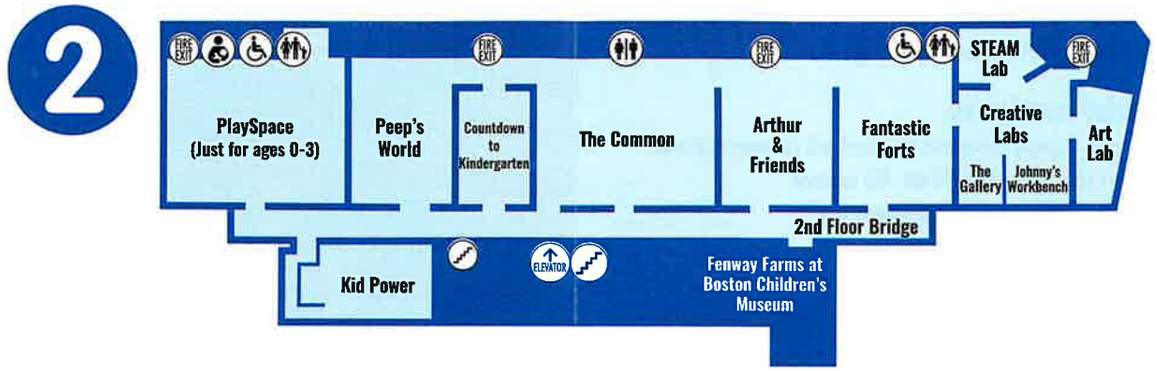
BOSTON CHILDREN'S MUSEUM
308 Congress Street, Boston, MA 02210
(617) 426-6500 | www.BostonChildrensMuseum.org

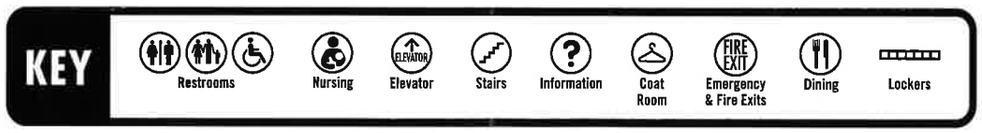
BOSTON CHILDREN'S MUSEUM

VISITORS GUIDE









CONSTRUCTION ZONE
Trucks, Bobcats™, and jackhammers! Come build with your children.

DINOS IN SPACE
Discover this fun, creative, imaginary universe that joins dinosaurs with outer space.

JAPANESE HOUSE
Explore a historic Japanese home. See today's schedule for hours and activities.

JAPANESE HOUSE GALLERY
Experience art that represents the ideas of today's multifaceted youth culture of Japan.

KYOTO STREET
Take a stroll down a street in Kyoto, Japan.

YOU, ME, WE
A space for families to connect around questions of fairness in the world and express themselves through guided identity exploration.

Please Support Our Helping Hands Campaign

Your gift helps us continue to support our kids and families!

ART LAB
Get creative! See today's schedule for workshops and drop-in art experiences.

ARTHUR® & FRIENDS
Explore the world of Arthur®, D.W.®, and their friends and family.

THE COMMON
Play games and make some music! Features a lively calendar of events.

COUNTDOWN TO KINDERGARTEN
Get ready for school in our fun and immersive model classroom.

FANTASTIC FORTS
Build big structures and bigger ideas!

THE GALLERY
See artwork by local artists featuring a wide range of ideas and techniques.

JOHNNY'S WORKBENCH
Practice using real tools like saws, screwdrivers, and more.

KID POWER
Pedal, climb, and learn how families can live healthier lives.

PEEP'S WORLD®
Discover the wonders of water, light, shadow, and more.

PLAYSPACE
Children ages 0-3 and their adults can explore, play, and connect in a safe space just for them.

STEAM LAB
Make something, solve problems, and experiment with STEAM (science, technology, engineering, arts, and math). See today's schedule for activities.

KID POWER
Pedal, climb, and learn more about how families can lead healthier, more active lives.

KIDSTAGE
A theatre designed just for families. Check calendar for special events.

LOBBY
The central lobby is the place to get information and plan your visit.

NEW BALANCE FOUNDATION CLIMB
This incredible three-story climbing sculpture made of flowing, curved platforms helps children experience safe risk taking.

POP-UP PLAY
Pop-up seasonal experiences. Check the calendar for more details. BostonChildrensMuseum.org/calendar

SCIENCE PLAYGROUND
Stop by and INVESTIGATE plants and animals, make BUBBLES, and roll golf balls down RACEWAYS.

SMITH FAMILY PARK
A free, open, safe, and educational space for all.

STONEWALL KITCHEN
Specialty foods, home goods, gifts, and an in-store café! www.stonewallkitchen.com

MATHTRAIL
Explore math through prompts and games in this outdoor trail.

WHAT IS BOSTON CHILDREN'S MUSEUM?

Boston Children's Museum engages children and families in joyful discovery experiences that instill an appreciation of our world, develop foundational skills, and spark a lifelong love of learning. It is a private, non-profit, educational institution that is recognized internationally as a research and development center and pacesetter for children's exhibitions, educational programs, and curriculum. More information can be found at www.BostonChildrensMuseum.org

Become a Member TODAY!

Membership gives families an opportunity to save money and support the Museum. To learn more email: Membership@BostonChildrensMuseum.org.

Shopping

M **Main Store**
Commemorate your day at the Museum

U **SUE Store**
Take home a memento from your visit with everyone's favorite murderbird

G **Dino Lab**
Build your own stuffed dinosaur

Dining

M **Field Bistro**
Locally sourced cuisine, coffee, and craft beer

G **Explorer Cafe**
Family-friendly dining
Hours vary

G **Picnic Areas**
Enjoy outside food and drink near the Sea Mammals or in the Siragusa Center

Please keep our collections safe—no food or drink outside these designated eating areas.

Membership

Become a member to share in our passion for discovery. Your membership supports our world-class exhibitions, scientific research, collections care, and our overall mission.

Plus membership has its benefits:

- Free basic admission
- Free or discounted special exhibition tickets
- Invitation to exclusive onsite and virtual events
- Discounts at Museum stores, restaurants, and more

Ready to become a card-carrying member?
Stop by the membership desk during your visit to apply the cost of your basic admission toward the purchase of your first year's membership.

Map

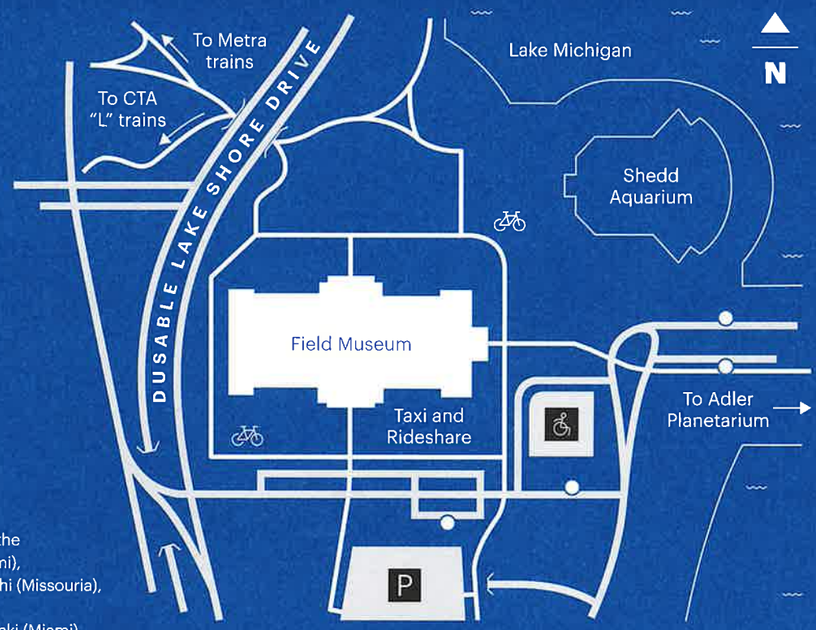
Transportation

Taxi and Ride-sharing
Vehicles may pick up passengers outside the South Entrance.

Train and Bus
The #146 bus offers direct access between the Museum Campus and the CTA's Roosevelt stop for Red, Orange, and Green line "L" trains.

The closest Metra stop is the Metra Electric District station at Museum Campus/11th Street.

Bike
The lakefront path runs north and south of the museum, or bike west via the 11th Street Pedestrian Bridge and Roosevelt.



The Field Museum acknowledges that it was built on the traditional homelands of the Bodéwadmik (Potawatomi), Hoocąk (Winnebago/Ho'Chunk), Jiwere (Otoe), Nutachi (Missouria), and Baxoje (Iowas); Kiash Matchitiwuk (Menominee); Meshkwahkîha (Meskwaki); Asâkîwaki (Sauk); Myaamiaki (Miami), Waayaahtanwaki (Wea), and Peeyankihšiaki (Piankashaw); Kiikaapoi (Kickapoo); Inoka (Illini Confederacy); Anishinaabeg (Ojibwe), and Odawak (Odawa). The Museum recognizes that the region we now call Chicago was the traditional homelands of many Indigenous nations, and remains home to diverse Native people today. The land we walk was and remains Native land.

First aid
Information
Visitors' Center
Accessible toilets
Elevator
Stairs
Restaurant
Picnic, vending
Accessible
Stroller access
Store
Coat check (seasonal)
ATM ATM

Accessibility + Inclusivity

Toilets
Accessible toilets are located on every level. There is also a single-stall, all-gender restroom on the Ground Level near the Explorer Cafe and a changing room in the restroom by the East Entrance.

Wheelchairs
Visitors can borrow wheelchairs at no cost from the South and East Entrances.

Hearing
Assisted listening devices are available in our 3D theaters at no charge.

Hours + Contact

We are open every day except Thanksgiving and Christmas.

Contact us with questions or feedback about your experience.
Phone 312.922.9410 / **TTY:** 312.665.7669
Email visitorservices@fieldmuseum.org

Wifi

Free wireless internet is available throughout the museum (signal strength may vary). Look for the "FieldMuseumWiFi" network.

Programs

We offer a variety of free programming throughout the day, from docent-led tours to on-the-fly collections exploration with our Discovery Squad volunteers. For more information on programming during your day at the Museum, visit the Information Desk located in Stanley Field Hall.

Families

Changing Stations
There are changing stations in every restroom, plus three family-friendly restrooms on the Ground Level.

Nursing Room
Moms can nurse wherever they are comfortable. Need more privacy? There's a nursing room in the women's restroom behind the Siragusa Center on the Ground Level.

Strollers
Stroller rentals are available for $3 from coat check or any point of entry. Strollers are allowed everywhere except in some ticketed exhibitions—"parking" is available outside each entrance.

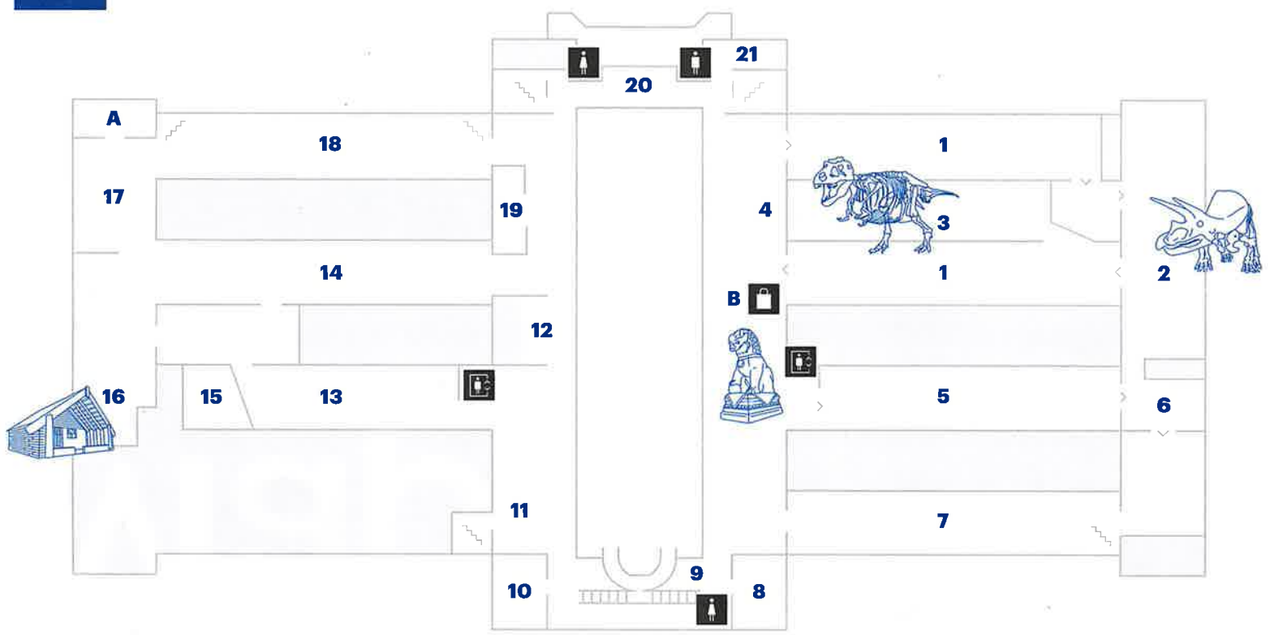
PlayLab + Science Hub Hours
Kids become scientists through hands-on play in the *Crown Family PlayLab*, open **10am–3:30pm** every day.
See and touch items from collections in the *Grainger Science Hub*, open **10am–3pm** most days.

Mission

The Field Museum connects all of us to the natural world and the human story. For more information, visit **fieldmuseum.org**.

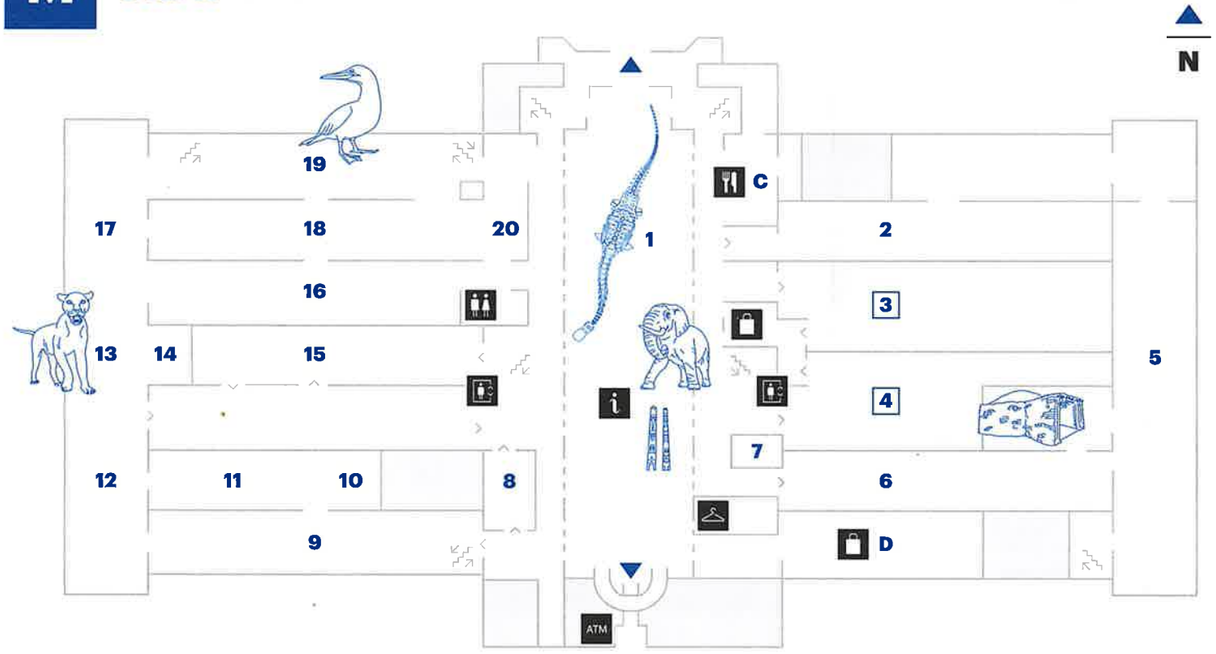
CHICAGO PARK DISTRICT
We thank the people of Chicago for their generous, long-standing support of the Museum through the Chicago Park District.

U Upper Level



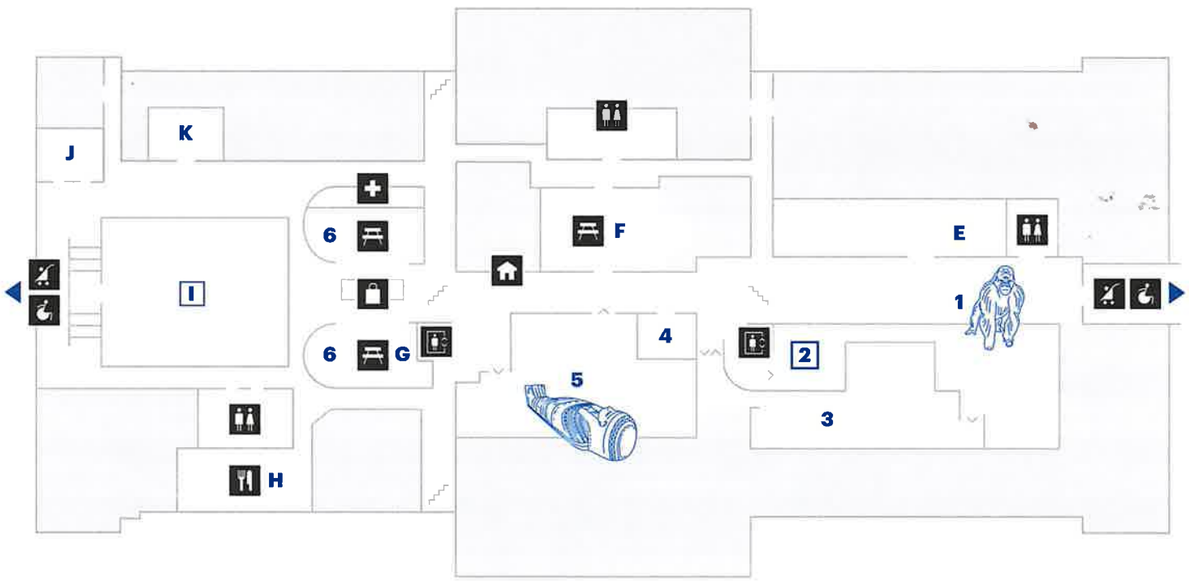
1 **Evolving Planet** | Griffin Halls of Evolving Planet
2 **Dinosaurs** | Elizabeth Morse Genius Hall of Dinosaurs
3 **SUE the *T. rex*** | Griffin Dinosaur Experience
4 **Fossil Prep Lab**
5 **China** | Cyrus Tang Hall of China
6 **Spirit Stone Garden** | Sue Ling Gin Garden
7 **Plants of the World**
8 **Jades** | Malott Hall of Jades
9 **Meteorites** | Grainger Gallery
10 **Gems** | Grainger Hall of Gems
11 **Geology**
12 **DNA Discovery Center** | Rice DNA Discovery Center
13 **Traveling the Pacific** | Regenstein Halls of the Pacific
14 **Pacific** | Regenstein Halls of the Pacific
15 **Conservation Lab** | Regenstein Lab
16 **Maori Meeting House** | Ruatepupuke II
17 **Temporary Exhibition** | Comer Family Gallery
18 **Restoring Earth** | Abbott Hall of Conservation
19 **Tibet Gallery** | Cyrus Tang Hall of China
20 **Visitor Lounge** | Searle Family Lounge
21 **Audubon's Birds of America** | Brooker Gallery
A **Digital Studio** | Grainger Digital Studio
B **SUE Store**

M Main Level



1 **Máximo the Titanosaur** | Griffin Dinosaur Experience
2 **The Ancient Americas** | McCormick Halls
3 **Temporary Exhibition** | Holleb Hall
4 **Temporary Exhibition** | Levin Hall
5 **Northwest Coast & Arctic Peoples** | Alsdorf Hall
6 **Native Truths: Our Voices, Our Stories** | Sarowitz Family Hall
7 **Science Hub** | Grainger Science Hub
8 **Inside Ancient Egypt**
9 **What is an Animal?**
10 **Reptiles & Amphibians**
11 **Bird Habitats**
12 **Mammals of Africa** | Akeley Memorial Hall | Rice Wing
13 **Tsavo Lions** | Rice Wing
14 **Temporary Exhibition** | Rice Gallery
15 **Africa**
16 **Mammals of Asia** | Kelley Hall
17 **World of Mammals** | Rice Wing
18 **Messages from the Wilderness**
19 **Birds** | Gidwitz Hall of Birds
20 **Nature Walk**
C **Field Bistro**
D **Main Store**

G Ground Level



1 **Bushman the Gorilla**
2 **Underground Adventure**
3 **The Machine Inside: Biomechanics**
4 **Insects**
5 **Inside Ancient Egypt *(continued)***
6 **Sea Mammals**

E **PlayLab** | Crown Family PlayLab
F **Picnic Area** | Siragusa Center
G **Picnic Area** | Sea Mammals
H **Explorer Cafe**
I **3D Movies** | James Simpson Theatre
J **Lecture Hall** | A. Montgomery Ward Hall
K **N. W. Harris Learning Collection**

Ticketed

Early Childhood Programs

FIELD MUSEUM

Activate wonder in your junior explorers with a PlayLab program!

PlayLab Summer Camps

Two-day, morning summer camps for 3-5 year olds

The *Crown Family PlayLab* offers families and their young learners summer camp programs spanning dino, safari and underwater themes. *PlayLab* summer camps are available to 3-5 year olds and take place across two morning sessions. To participate, children must be accompanied by a caregiver 18 years of age or older.

PlayLab PlayDates

Weekly, drop-in programs for 2-6 years old on IL Resident Free Days

Drop in to the Field Museum for free activities in the *Crown Family PlayLab*! PlayLab PlayDates provide families with children ages 2-6 years old something different during each weekly session. Sessions take place on Wednesdays, which are also free admission days for IL residents! Visit our website to learn what PlayDates are coming up.

Learn more: fieldmuseum.org/playlab-programs

WHICH EXHIBITS SHOULD MY FAMILY VISIT?

Young Children

All exhibits are open to all ages! The exhibits listed here are our best recommendation of what will allow children under 10 to get the most out of a visit, and which exhibits are most visually engaging for a younger audience.

FIELD MUSEUM

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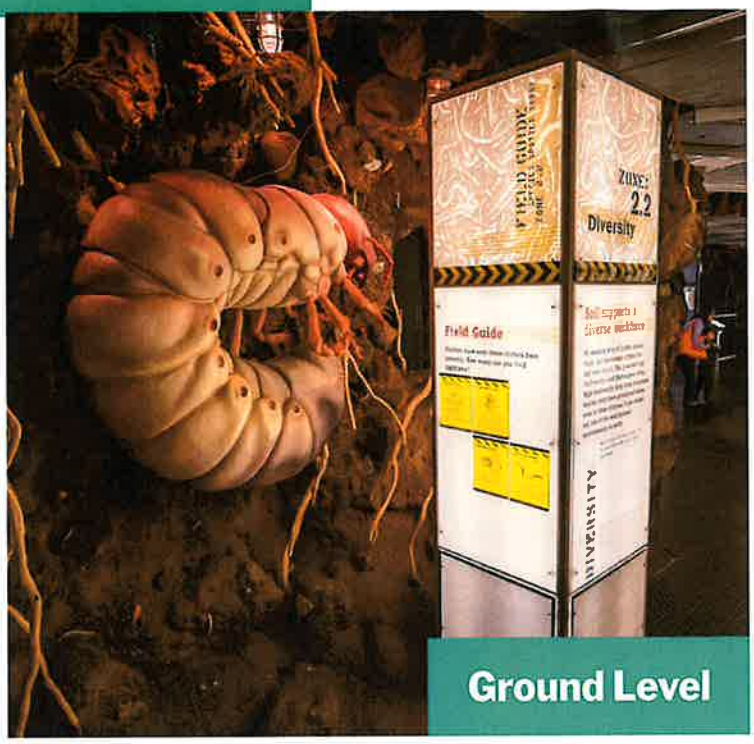
Life and Earth Sciences

Exhibition Location > Ground Level

UNDERGROUND ADVENTURE



Suggested Visit Length 30 minutes

Description

In this immersive exhibition, you'll "shrink" to 1/100th of your actual size—smaller than a penny—to take a closer look at the soil beneath our feet. Once you're down to size, you'll meet a creepy, crawly cast of characters, including a giant mole cricket and a wolf spider. You'll learn about the diversity of life that soil supports and how every species needs soil to survive and thrive.

Key Features

Dark tunnels and large animatronic models of insects like earwigs and ants, along with plant root systems allow you to feel like you're walking through underground soil. **The animatronic insects will move, but nothing is alive!

Lead Sponsor: Monsanto

Note

This is a ticketed exhibition (not included in general admission).

Life and Earth Sciences

Exhibition Location > Main Level

WHAT IS AN ANIMAL?

Suggested Visit Length 30 minutes

Description

Learn about what an animal is, how they have so many different shapes, colors, and sizes. Learn about where animals live, how they live, and what they do to survive.

Key Features

A more accessible exhibit great for younger children to explore facts about animals. A few opportunities to touch displays and watch videos. Option to extend visit into the neighboring animal biology and mammals halls.

Exhibition Location > Main Level

NATURE WALK & MESSAGES FROM THE WILDERNESS

Suggested Visit Length

30–60 minutes (*Messages from the Wilderness* is one hallway, and *Nature Walk* is one smaller area.)

Description

Take a "nature walk" to find animal and plant ecosystems from various climatic zones. Then, enter the hall for *Messages from the Wilderness* to observe animals in their habitats and learn what they do to survive.

Key Features

Visually striking displays of animals like bears and moose allow children to experience animals up close. *Nature Walk* has several interactive flip-books and displays to allow children to see and hear these habitats.

Life and Earth Sciences

Exhibition Location > Main Level

MAMMALS HALL

Suggested Visit Length

Length can depend on the interest of the children. There are few interactive, video, or hand-on components, but the displays are striking. Groups could focus on one hallway, geographic area, animal type, etc. Some groups walk through one area in about 10 minutes, others spend an hour throughout the many halls.

Description

Explore the many hallways of mammals from Africa and Asia. The halls include early, hoofed, marine animals, primates, rodents, bats, shrews, and more.

Key Features

Display after display of taxidermy animals in their habitats allows children to explore the types of animals and placards provide information about how and where they survive.

Life and Earth Sciences

Exhibition Location > Main Level

GIDWITZ HALL OF BIRDS

Suggested Visit Length 30 minutes

Description

Extensive displays of birds from North America, with a smaller number of birds from around the world. These preserved and displayed specimens are wonderful examples of birds both common and exotic, as well as some that are now extinct. Learn about bird features, nesting, habitats, migration, threats, and more.

Key Features

Press buttons to hear bird calls, and a few interactive screen displays allow you to learn more about the colorful birds behind the glass.

Life and Earth Sciences

Exhibition Location > Upper Level

EVOLVING PLANET & SUE THE T. REX

Suggested Visit Length 1 hour

Description

Get to know the many creatures that have roamed the earth throughout history, from single-celled organisms to our extended human family. Experience a variety of fossils that tell the story of evolution. The exhibit proceeds chronologically, starting billions of years ago and ending at the present.

Key Features

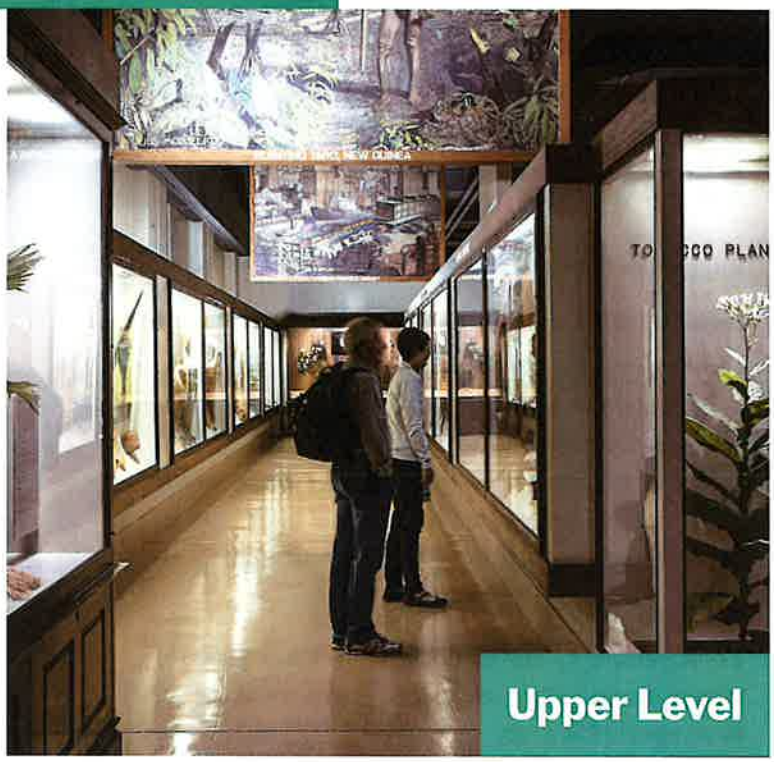
See SUE the T. rex, a model of Lucy (a 3.2-million-year-old hominid), as well as many fossils and displays of plants and animals that are extinct. The exhibit is divided into "Mass Extinction Events." There are a few videos throughout the exhibit to support the information from the displays.

The Griffin Dinosaur Experience, made possible by the generous support of Kenneth C. Griffin, includes a special traveling exhibition, *Antarctic Dinosaurs*; Máximo the Titanosaur; updates to SUE the *T. rex* and the *Griffin Halls of Evolving Planet*; and new dinosaur education programs

Life and Earth Sciences

Exhibition Location > Upper Level

PLANTS OF THE WORLD



Suggested Visit Length 30 minutes

Description

See detailed reproductions of plant species from around the world, such as rubber, cotton, coffee, fruits, and tea. Accompanied by large artistic representations of humans farming plants in various geographic settings. Many plants have genera, species, or parts of the plants labeled.

Key Features

Life-size, colorful displays of plants that provide us with everyday materials, medicines, and goods.

Life and Earth Sciences

Exhibition Location > Ground Level

THE MACHINE INSIDE: BIOMECHANICS

Suggested Visit Length 30 minutes

Description

How do living things move, fly, sense, and survive? See displays that compare living things to machines to better understand the ways that plants and animals function. Try to pump a giraffe heart, clamp jaws, or see how plants fold in the wind.

Key Features

All ages can try out interactive buttons, levers, and handles that show how mechanics like wings and fins, pumps and pipes, and claws and jaws work in nature.

The Machine Inside: Biomechanics is sponsored by NASCAR

The Field Museum gratefully acknowledges the generous support provided by ITW and Searle Funds at The Chicago Community Trust for *The Machine Inside: Biomechanics* exhibition from 2014 through 2021.

Social Sciences

Exhibition Location > Ground Level

INSIDE ANCIENT EGYPT

Suggested Visit Length 30 minutes

Description

Take an up-close look at the daily lives of ancient Egyptians—as well as how they thought about death. Along with tombs and mummified remains, the exhibition features a recreation of an ancient marketplace reconstructed from market scenes depicted on tomb walls. Note: This exhibit will bring up questions about death. This tends to be more popular for 9+ year olds.

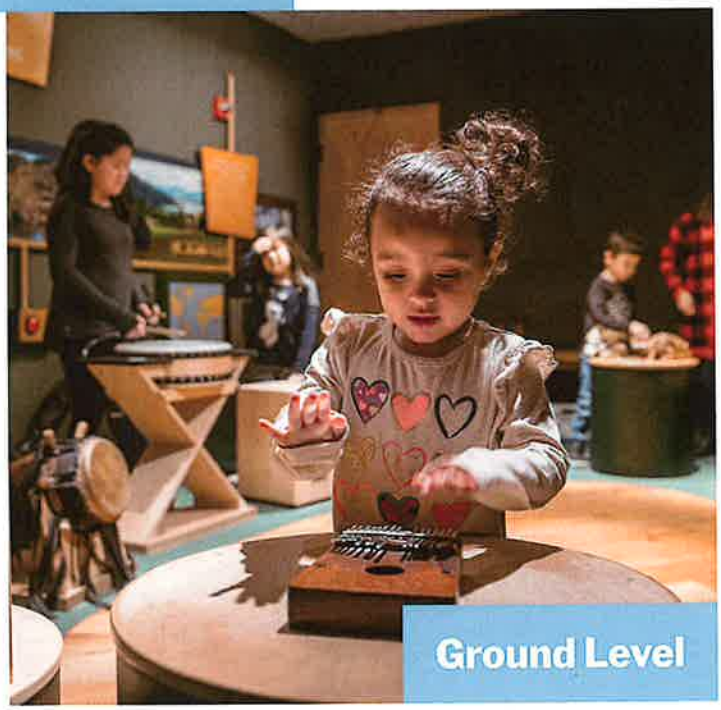
Key Features

Enter through a three-story replica of a mastaba, a type of ancient Egyptian tomb, to see an authentic burial chamber which dates to 2400 BC. The exhibit houses one of the largest collections of mummified people in the United States: 23 human mummies and more than 30 animal mummies.

Interactive Learning Experiences

Exhibition Location > Ground Level

CROWN FAMILY PLAYLAB



Grade Levels Pre-K – 1st (ages 2–6)

Visit Length 30 minutes (advance registration required for large groups or field trip groups)

Description

This space allows our youngest visitors to play in hands-on spaces and experience the museum in a different way.

Key Features

Explore a Pueblo home, star in a nature play dressed as your favorite Illinois animal, move to music from around the world, participate in arts and crafts, or uncover dinosaur bones in this entirely interactive space.

Suggested Exhibit Connections

Explore *Evolving Planet* for more dinosaurs, insects in *Underground Adventure*, or *Nature Walk* for more local animals!

hello

English

MAP

GRIFFIN MUSEUM OF SCIENCE+INDUSTRY

NEW AT GRIFFIN MSI

Notes to Neurons
Notes to Neurons premieres in the new Griffin Studio, taking guests on a journey to discover the power of music in our lives and its ability to connect us to one another. • Main Level 2 • *Free timed-entry throughout the day. No tickets required.*

The Rotunda Experience
Activating the Museum's architectural hub, the Rotunda Experience features interactive multimedia and a cinematic show. Sequencing throughout the day, this experience welcomes guests to explore the wonders of science and our common humanity. • Main Level 2

The Henry Crown Space Center
From Sputnik to SpaceX, the newly renovated Space Center pays tribute to the past, present, and future of space exploration. • Lower Level 1

LIMITED-TIME EXHIBIT

007 Science: Inventing the World of James Bond
Closes October 27, 2024
Discover the ways in which the James Bond moviemakers harness scientific thinking to craft 007's iconic gadgets and vehicles, and how they employ physics, chemistry, engineering and mathematics to create thrilling stunts and action sequences. • Main Level 2 • *Timed-entry ticket required.*

Image courtesy of EON Productions

CLASSICS

Coal Mine
Descend a mine shaft, take a ride on the Coal Mine train, and learn the evolution of the technology of coal mining in this 30-minute guided walking tour. • Main Level 2 • *Timed-entry ticket required. Not accessible to wheelchairs or strollers.*

Colleen Moore's Fairy Castle
Experience the enchantment of this one-of-a-kind castle that has called the Museum home since 1949. • Lower Level 1

Genetics + Baby Chick Hatchery
Learn about DNA, discover what makes us unique, and watch as baby chicks peck out of their shells. • Main Level 2

Interactive Flight and Motion Simulators
Climb aboard and try your skills as a pilot or gunner in the flight simulator or take an exciting virtual trip onboard a six-passenger motion ride experience. • Balcony Level 3 • *Tickets required, available at the simulators. Age, weight, and height requirements apply.*

Numbers in Nature: A Mirror Maze
Navigate a giant mirror maze and discover the mathematical patterns that abound in the natural world. • Main Level 2 • *Free with timed-entry ticket available at the exhibit entrance.*

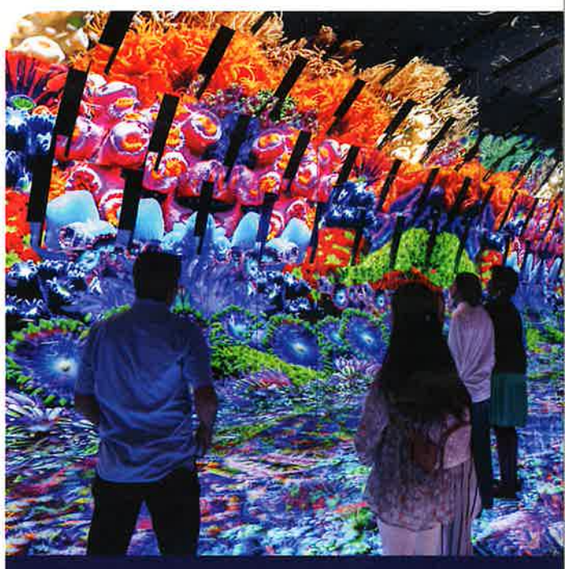
Pioneer Zephyr
Explore a new story about one of the fastest trains in the world in a renovated exhibit showcasing its legacy and impact on the future of transportation. • Entry Hall

Science Storms
Investigate the science behind nature's power as you understand the dynamics of a 40-foot tornado, see an avalanche in motion, and more. • Main Level 2

Transportation Gallery
Witness how humankind has flown, soared, sped, and chugged throughout the years with this awe-inspiring collection of planes, trains, and automobiles. Don't miss *The Great Train Story*'s 20 trains on a cross-country journey. • Main Level 2

U-505 Submarine Exhibit + On-board Tour
The World-famous U-*505* is the centerpiece of an unforgettable exhibit. Experience the Battle of the Atlantic, the U-*505*'s capture and more. An optional on-board tour allows you to explore the U-*505* from fore to aft. Allow 30 minutes prior to your scheduled tour time to explore the exhibit. • Lower Level 1 • *On-board tour requires a timed-entry ticket and is not accessible to wheelchairs or strollers.*

VR Transporter
Be transported to outer space via VR goggles and exciting motion and 4-D effects. • Balcony Level 3 • *Tickets required, available at the transporter. Age, weight, and height requirements apply.*



MUST-SEE EXHIBIT

The Blue Paradox
This experience explores the impact plastic pollution has on our ocean ecosystems and the planet. Through mind-blowing visuals, provocative data, and emotional storytelling, *The Blue Paradox* makes the ocean plastics crisis—and the collective actions needed to address it—relevant and relatable. • Main Level 2 • *Free with timed-entry ticket available at the exhibit entrance.*

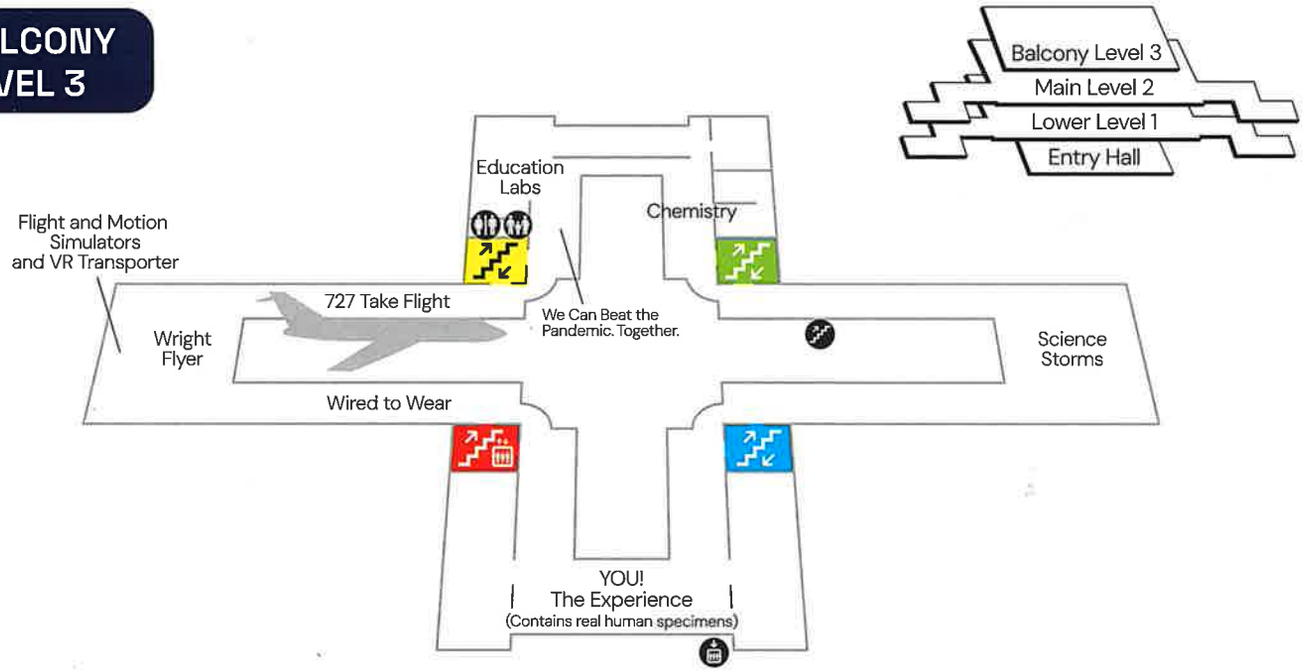
GIANT DOME THEATER

Enjoy a premium theater experience on our newly renovated five-story, domed wraparound screen. Immerse yourself in the brightest, clearest, and most colorful picture we've ever presented. Travel the globe on a scientific adventure without ever leaving your seat. For today's current films and showtimes, please visit a ticket counter or scan this QR code. • Main Level 2 • *CIBC is the Giant Dome Theater season sponsor. A timed-entry ticket is required for films.*

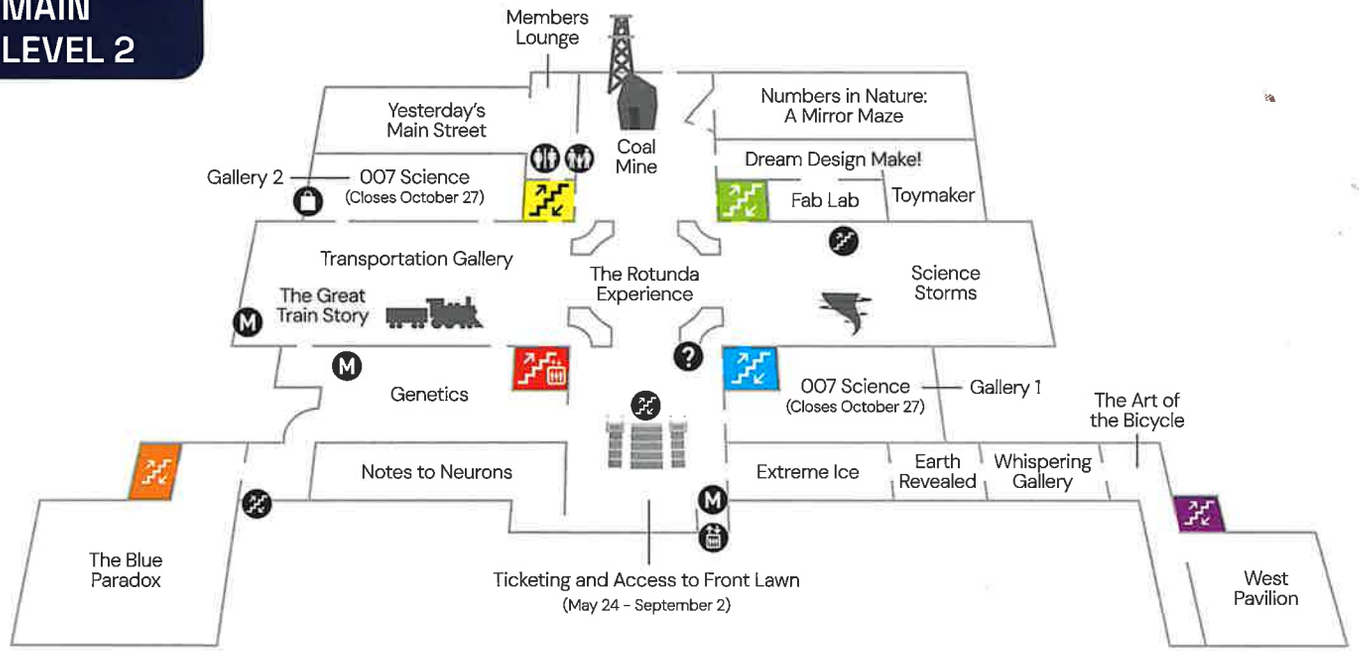
SCIENCE EXPERIENCES

Live Science
Discover interactive science moments throughout the Museum. Investigate the conditions needed to form a vortex, learn how the Tesla coil fires, and more. Visit the Information Desk to see what's offered. • Main Level 2

BALCONY LEVEL 3



MAIN LEVEL 2



AMENITIES

Dining

Find a variety of food choices for everyone at our recently renovated dining locations. Help us maintain our exhibits by eating and drinking in designated areas only. Scan the QR code to see what options are available today.

Museum Kitchen: Offers a variety of options for lunch including salads, sandwiches, soups, and more. Closes 90 minutes prior to Museum closing.

Stan's Donuts: Proudly serving Big Shoulders coffee, Stan's featured donuts, frappes, milkshakes, soups, sandwiches, salads, and snacks. Closes 1 hour prior to Museum closing.

One Small Snack: Coffee, smoothies, popcorn, drinks, and snacks. Open select days. Hours may vary.

Parking

Please pay for parking at pay stations before returning to your vehicle. Credit cards are accepted at all stations and cash is accepted at stations on the Green (C) and Brown (F) levels. Griffin MSI Members: Scan your membership card to enter and exit the garage. Individual and Dual Members: Scan your membership card at pay stations to pay your appropriate rate before leaving.

Shopping

There's something for everyone! The Museum Store in the Entry Hall has a variety of merchandise. Launch Pad, located in the Henry Crown Space Center, offers unique space-related products.

First Aid

Notify any uniformed Museum staff member if you need assistance.

Coat Check/Rentals/Strollers

Guest services in the Entry Hall provides coat check, single and double stroller rentals, and complimentary wheelchair rentals. Items are checked at your own risk – no valuables please. See a Guest Service staff member for pricing; rentals are free for members. Valid picture ID required for rentals. Guests may also bring their own strollers. For safety reasons, wagons are not permitted in the Museum.

Lost and Found

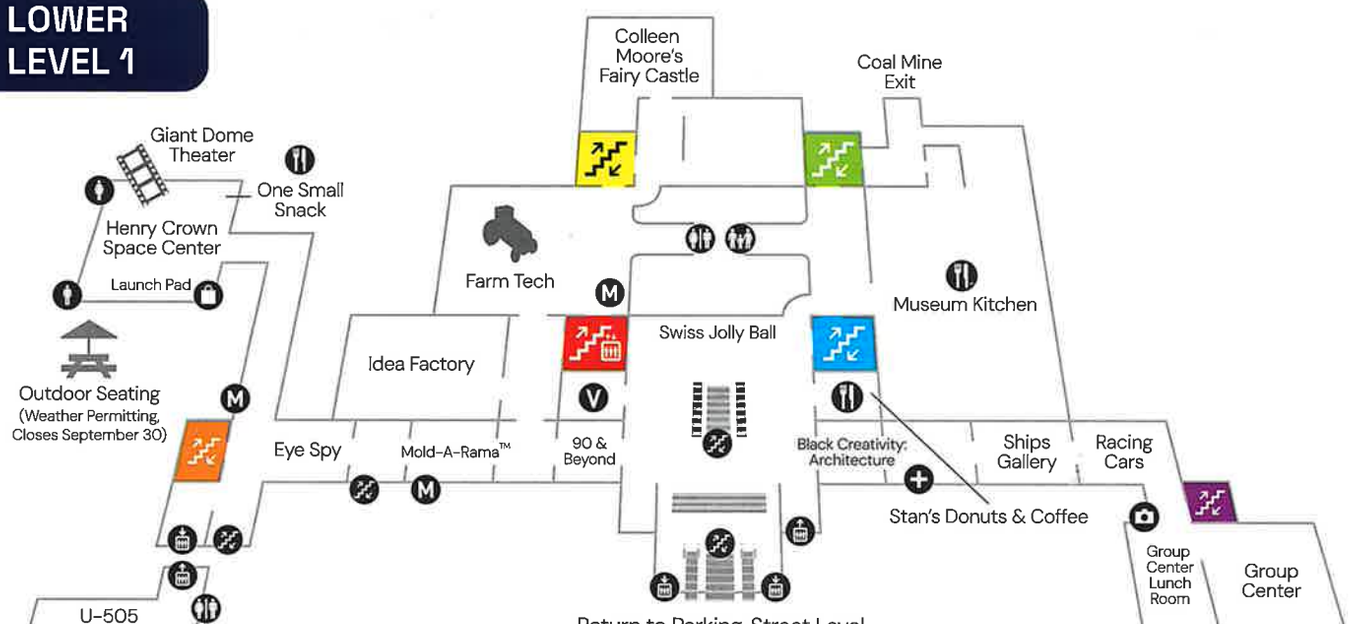
Lost and Found is located at Guest Services in the Entry Hall. You can also contact (773) 684-9844 ext. 6862 or coatcheck@msichicago.org.

Child Care Room

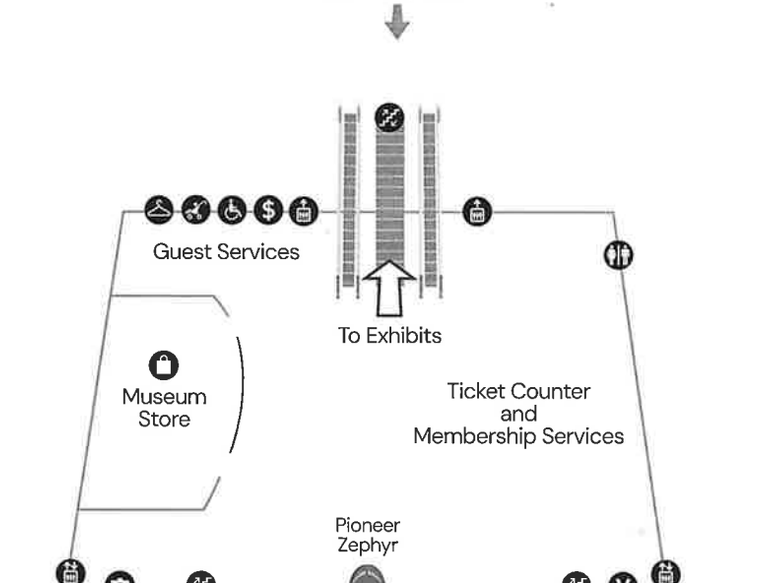
Griffin MSI welcomes caregivers to nurse and/or feed their child in any public space. If you prefer a semi-private space, one is available in the Idea

Factory on Lower Level 1.

LOWER LEVEL 1



ENTRY HALL



LEGEND

Restrooms · All-Gender/ Family Restrooms · Food & Drink · Vending Machines · Retail · First Aid · MOLD-A-RAMA · Information Desk · Stairway · Elevator · ATM · Coats/ Luggage · Stroller Rental · Wheelchair Service

MEMBERSHIP

One visit is never enough. Give your family a year of discovery with FREE admission, discounts on special exhibitions, and so much more. Apply today's Museum Entry tickets towards a membership at the ticketing desk on your way out and start saving. You can even get free or discounted parking for today's visit!

ABOUT GRIFFIN MSI

Photography

We love being tagged in your #MSIchicago posts! Photos and videos for your personal use and social media may be taken inside the Museum except inside the Giant Dome Theater and where otherwise posted. Photos, video, or audio for any other use requires advance notice and the permission of the Museum's Marketing Department. Tripod photography is not permitted.

Experience Griffin MSI, Anywhere You Are

Please stay in touch with Griffin MSI by visiting us at msichicago.org and by following us on our social media channels. Learn more about your favorite exhibits, access science activities, and experience our hands-on web and mobile-based apps.

Our Commitment

The Museum has an unwavering commitment to diversity and inclusion. We value and respect our diverse guests, volunteers, and staff and expect the same from our guests. Use of inappropriate language and/or behavior will not be tolerated. It may result in removal from the Museum with no refund.

Support Griffin MSI

Griffin MSI is a non-profit organization and one-third of our operating support comes from charitable gifts. Please support our work to transform lives through the power of science. Visit msichicago.org/donate.

One of Chicago's Museums in the Park

The Kenneth C. Griffin Museum of Science and Industry gratefully acknowledges the support of the Chicago Park District on behalf of the citizens of Chicago.