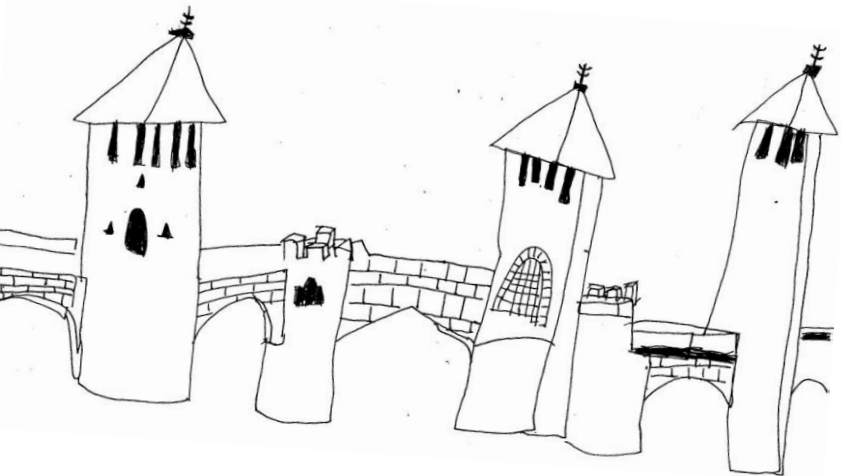


Kids Connect - Building Bridges

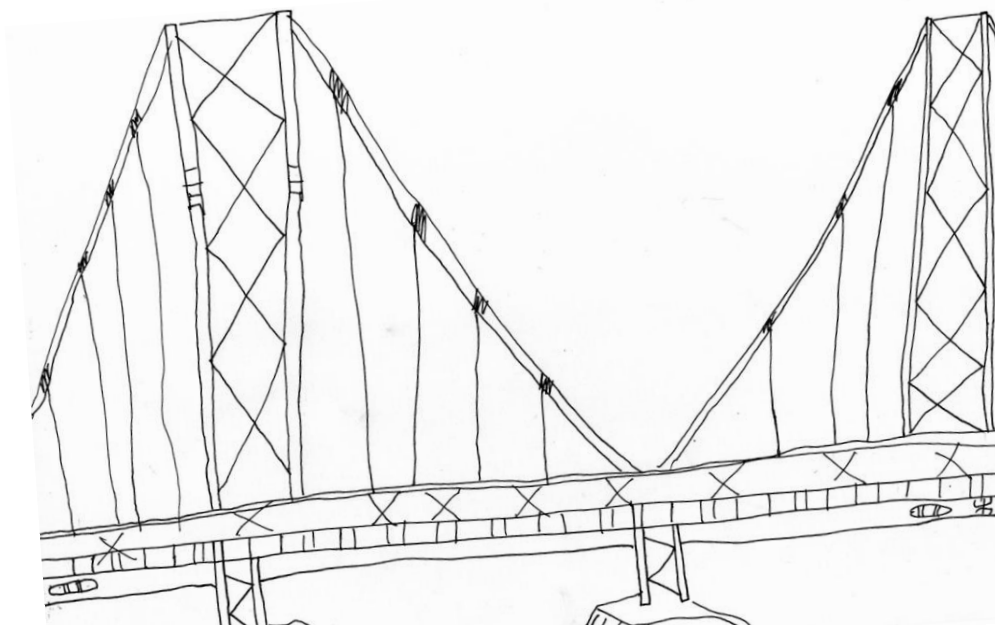
教材設計：



A social enterprise
of CreativeKids



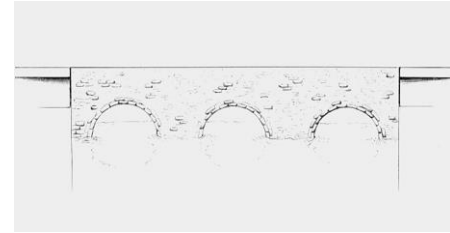
橋樑的五種基本形式



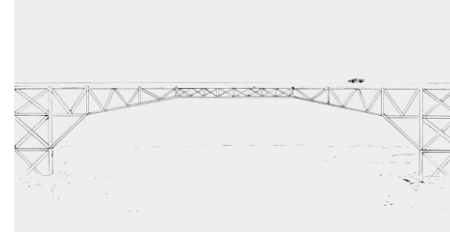
樑柱橋
Post and Beam



拱橋
Arched



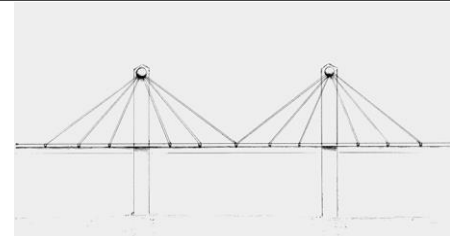
懸臂橋
Cantilevered



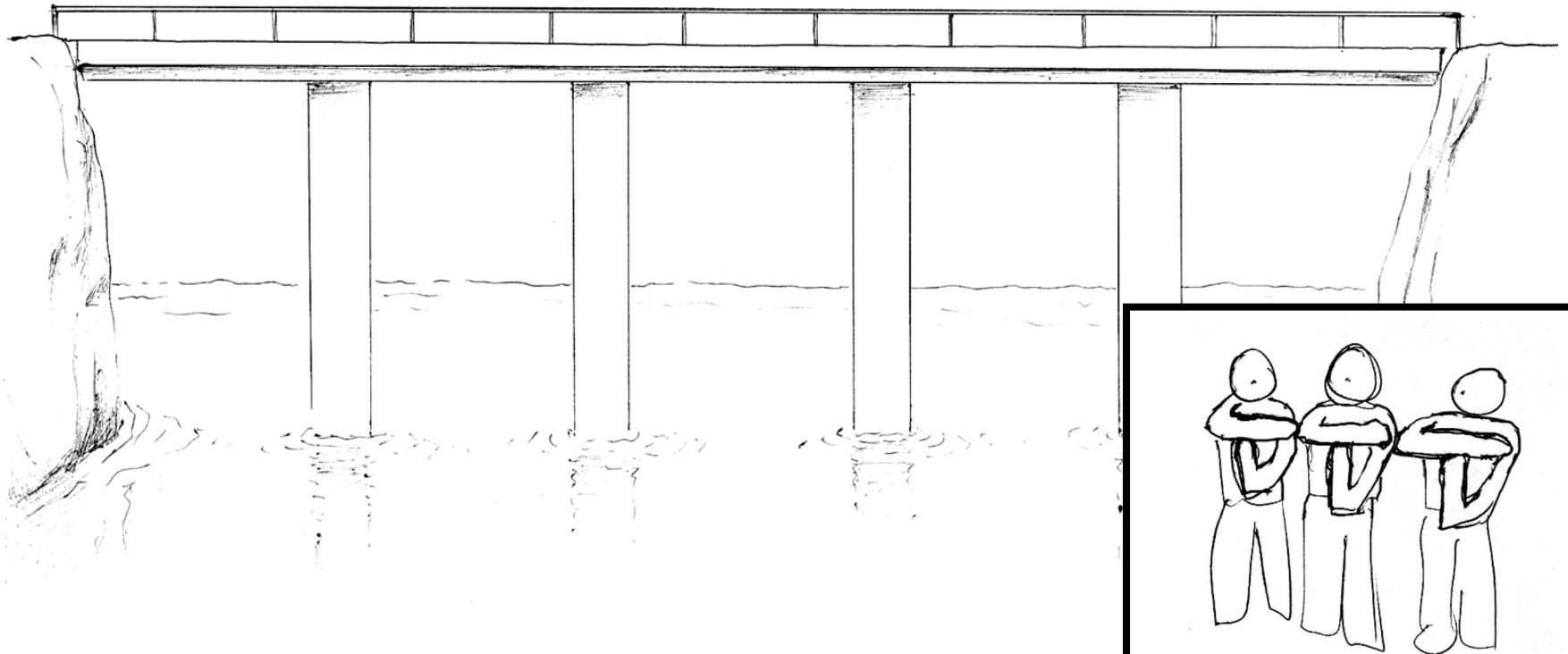
懸索橋
Suspension



斜張橋
Cable Stayed

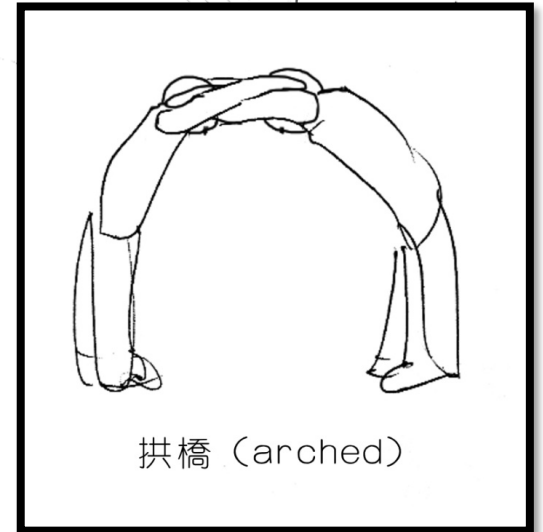
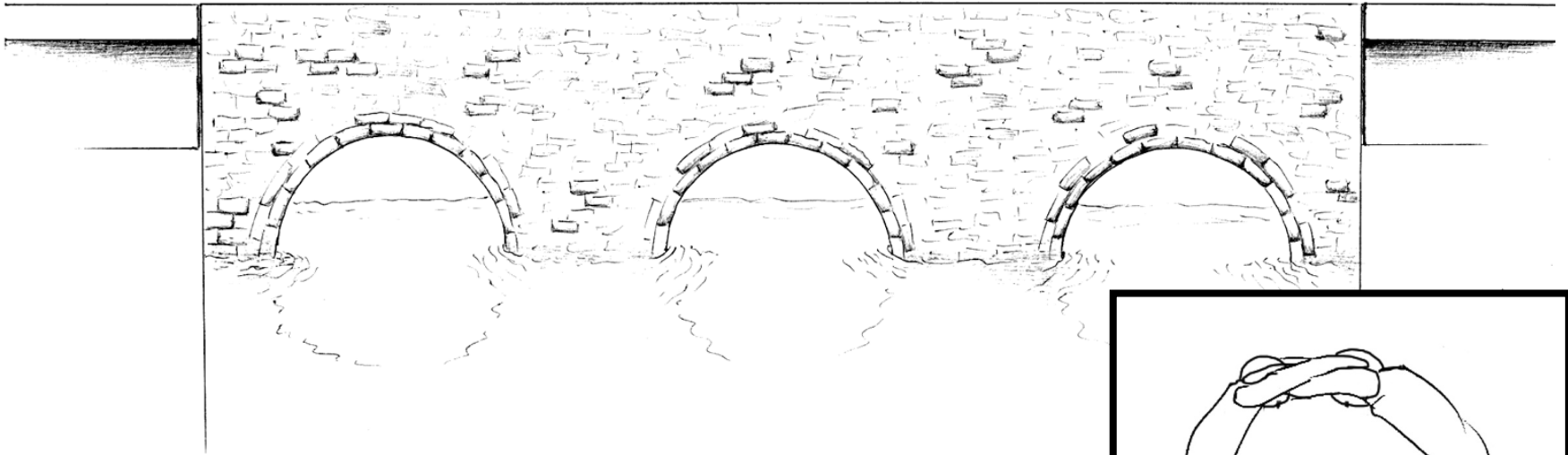


樑柱橋 Post and Beam



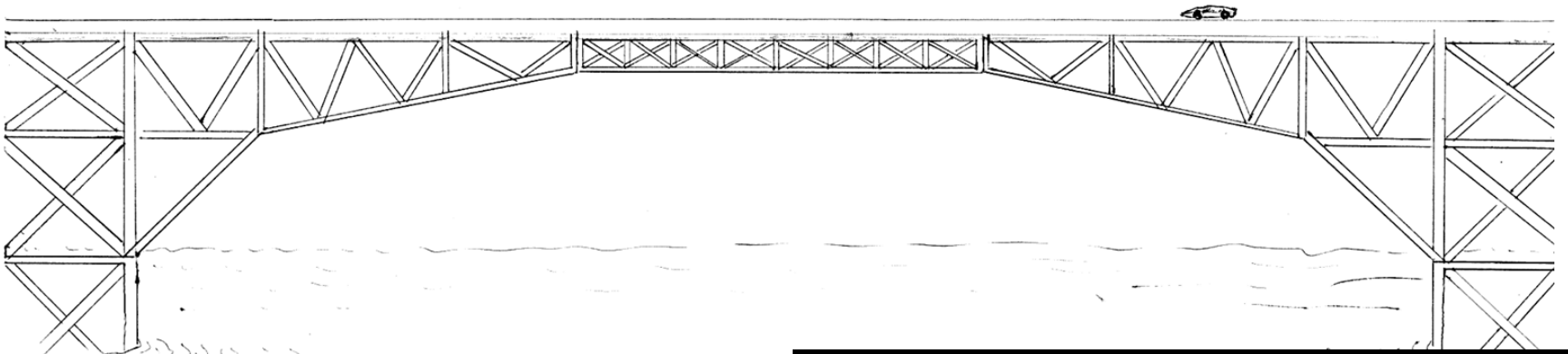
樑柱橋 (post and beam)

拱橋 Arched

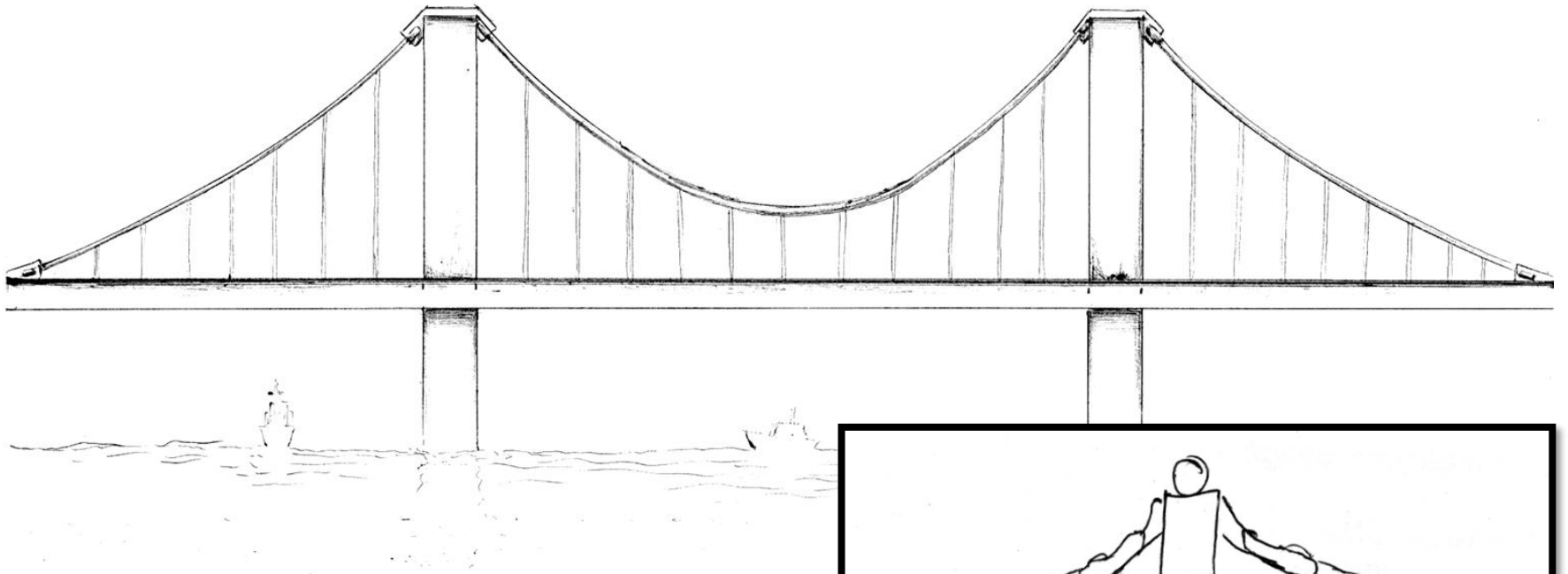


拱橋 (arched)

懸臂橋 Cantilevered

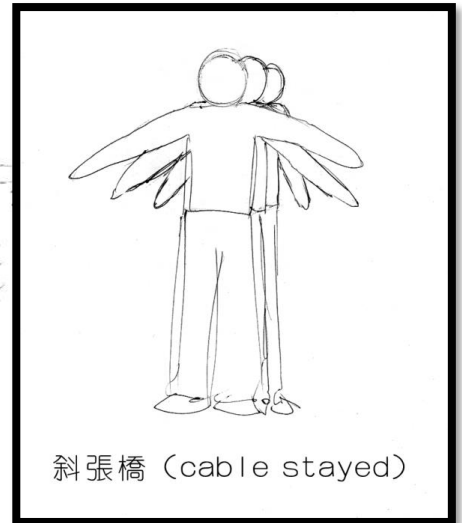
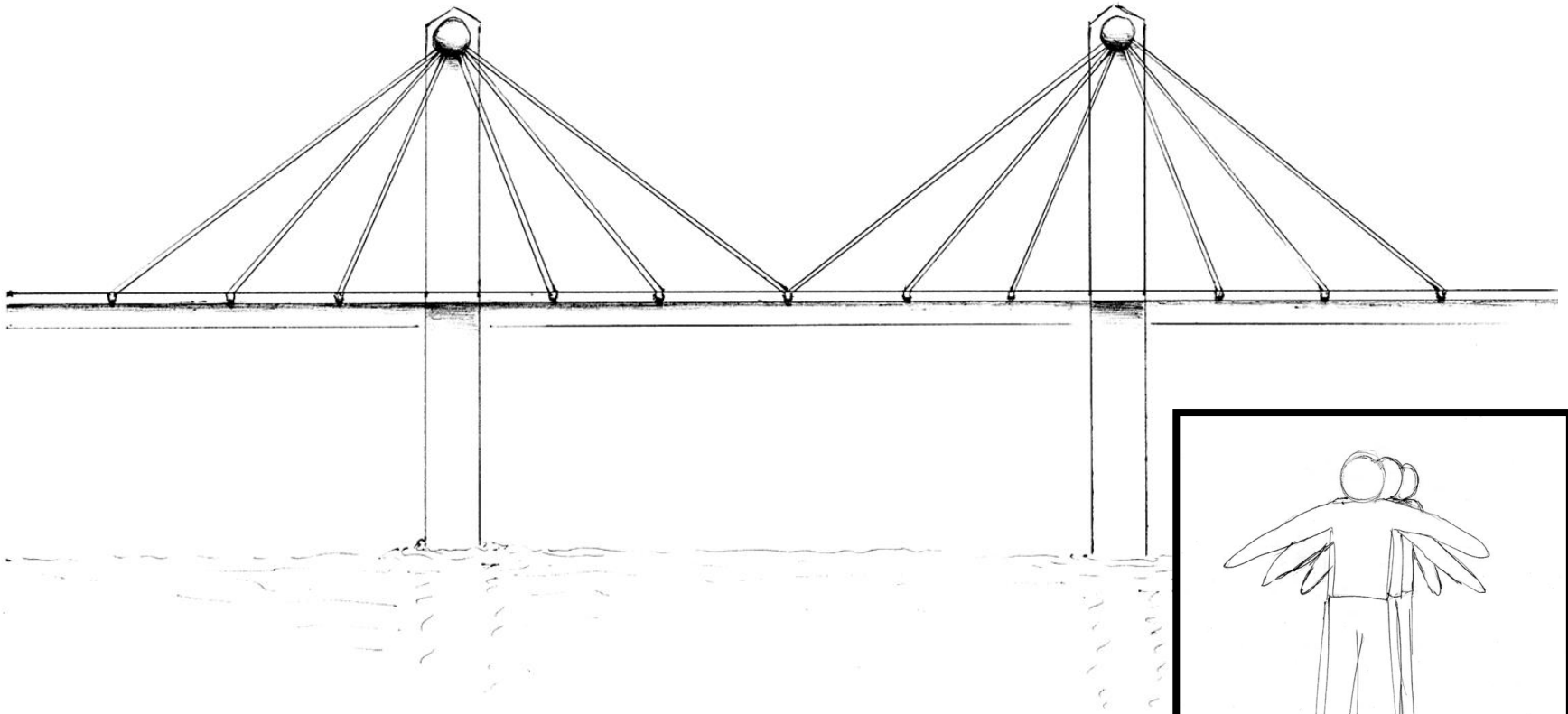


懸索橋 Suspension

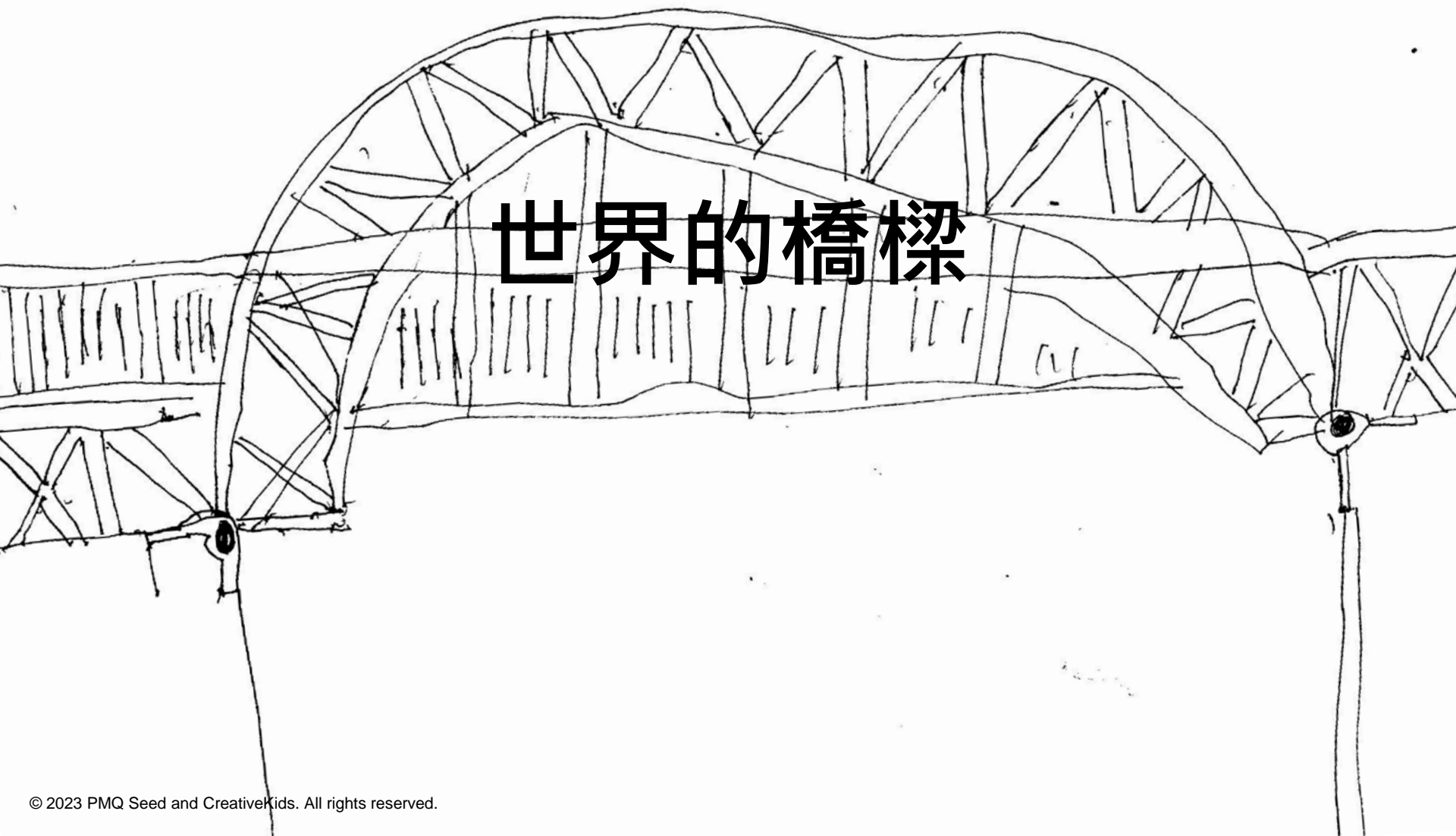


懸索橋 (suspension)

斜張橋 Cable Stayed



世界的橋樑





Tsing Ma Bridge, Hong Kong

Retrieved from <https://871968.forum.md/857643>



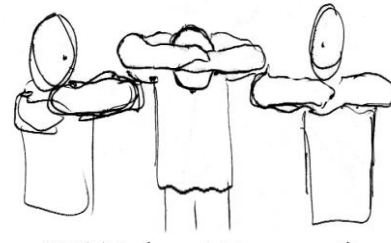
拱橋 (arched)



樑柱橋 (post and beam)



斜張橋 (cable stayed)



懸臂橋 (cantilevered)



懸索橋 (suspension)



Cortez Bridge, United States

Adapted from "15 Types of bridges around the world",
retrieved from <https://civilengineeringbible.com/article.php?i=219>



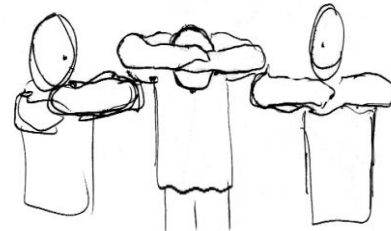
拱橋 (arched)



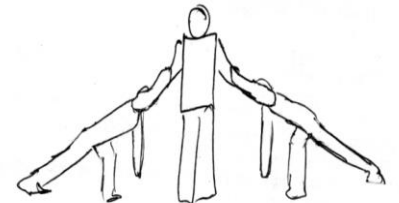
樑柱橋 (post and beam)



斜張橋 (cable stayed)



懸臂橋 (cantilevered)



懸索橋 (suspension)



Sunshine Skyway Bridge, Florida

Adapted from "Vasco da Gama Bridge Encyclopedia Britannica." by Petruzzello, M, 2022, retrieved from <https://www.britannica.com/topic/Vasco-da-Gama-Bridge>.



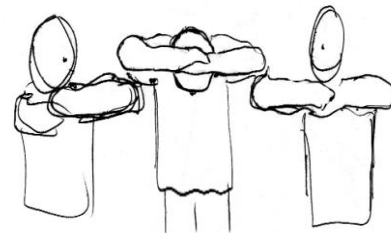
拱橋 (arched)



樑柱橋 (post and beam)



斜張橋 (cable stayed)



懸臂橋 (cantilevered)



懸索橋 (suspension)



Pamban Bridge, Rameswaram

Adapted from "Pamban Bridge in Rameswaram is an engineering marvel." by Akanksha Jain, 2016, retrieved from <https://www.businessinsider.in/pamban-bridge-in-rameswaram-is-an-engineering-marvel-here-are-5-quick-facts-about-indias-first-cantilever-bridge/articleshow/53284383.cms>



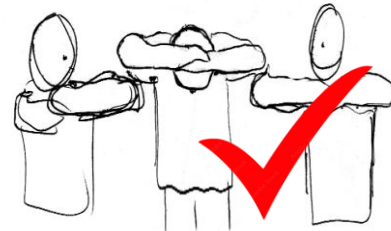
拱橋 (arched)



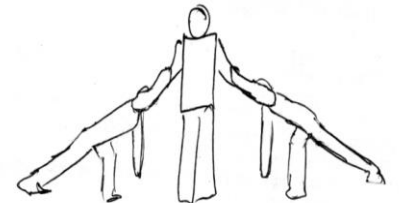
樑柱橋 (post and beam)



斜張橋 (cable stayed)



懸臂橋 (cantilevered)



懸索橋 (suspension)

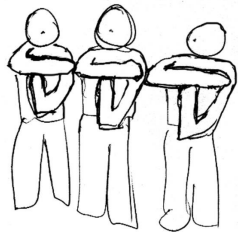


The Stone Arch Bridge, New York

Adapted from "Exploring Stone Arch Bridge Historical Park in the Catskills," by Jim Cheney, 2023, retrieved from <https://uncoveringnewyork.com/stone-arch-bridge-historical-park/>.



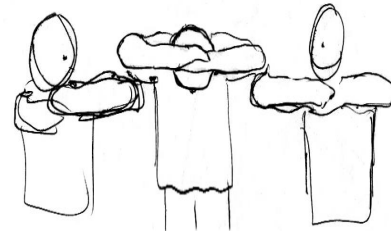
拱橋 (arched)



樑柱橋 (post and beam)



斜張橋 (cable stayed)



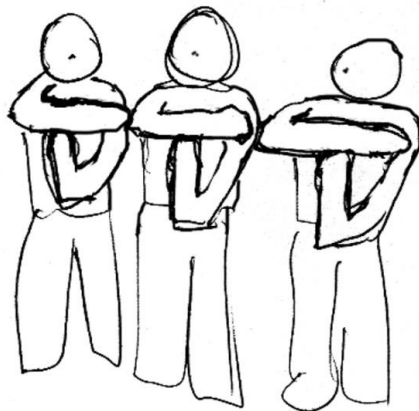
懸臂橋 (cantilevered)



懸索橋 (suspension)



拱橋 (arched)

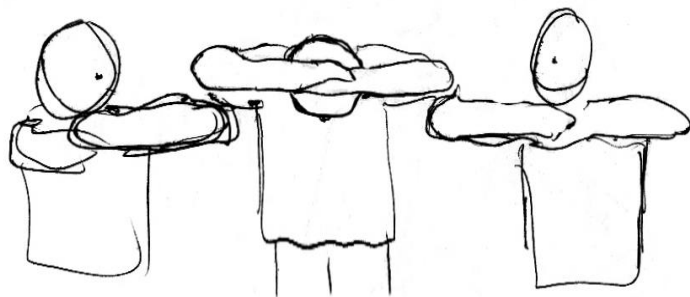


樑柱橋 (post and beam)



斜張橋 (cable stayed)

一起用身體表現不同結構的橋吧！



懸臂橋 (cantilevered)



懸索橋 (suspension)

卷報紙條的方法

活動前請準備報紙、膠紙，把報紙卷成條狀，作為建橋的主要材料。

可預備幼細竹籤方便在開始時卷成細條狀，拔掉竹籤後繼續用雙手卷成紙條。

最後貼上膠紙固定便成功完成一條報紙條。重覆動作，準備大約50條，便可製作一座橋樑。



支架結構及技巧分享

一) 「團結就是力量！」

若一條報紙條不夠堅固，可把多條報紙結合，並用膠紙在報紙條的頭、中、尾位置，橫向纏著黏緊。

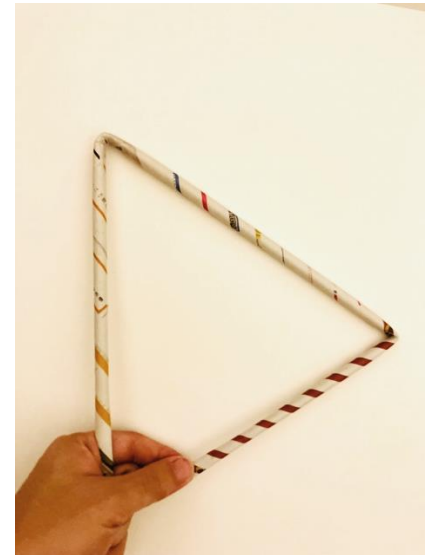


二) 三角形結構

三角形結構在建築上是穩固的形狀，在建造橋的結構時可考慮多加運用。

簡單以一條報紙條即可制作：以姆指抵著想要屈曲成角的地方，然後用食指和中指分別在姆指的左右同時向下按壓。

重複動作，最後用膠紙把報紙條的頭尾兩端黏合形成三角形。



三) 「z」字形

和三角形結構的做法類同，「z」字形可以說是三角形結構的另一變化。

每個角都向相反方向屈曲。可用來承托路面、作為支撐及裝飾等。

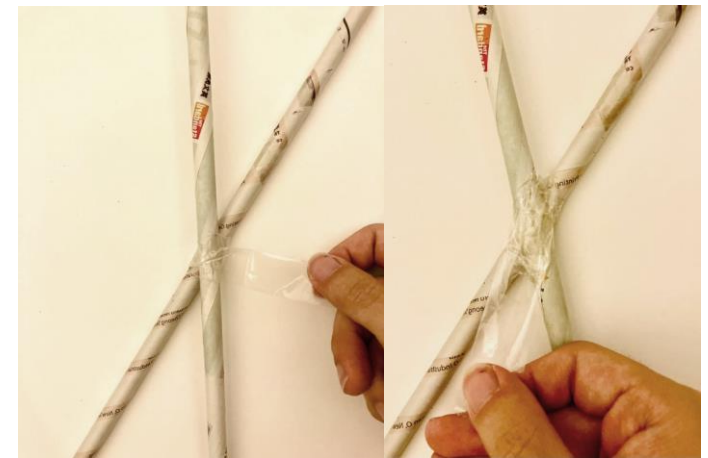


四) 「x」字形

「x」字形可形成多個三角形結構，十分穩固。

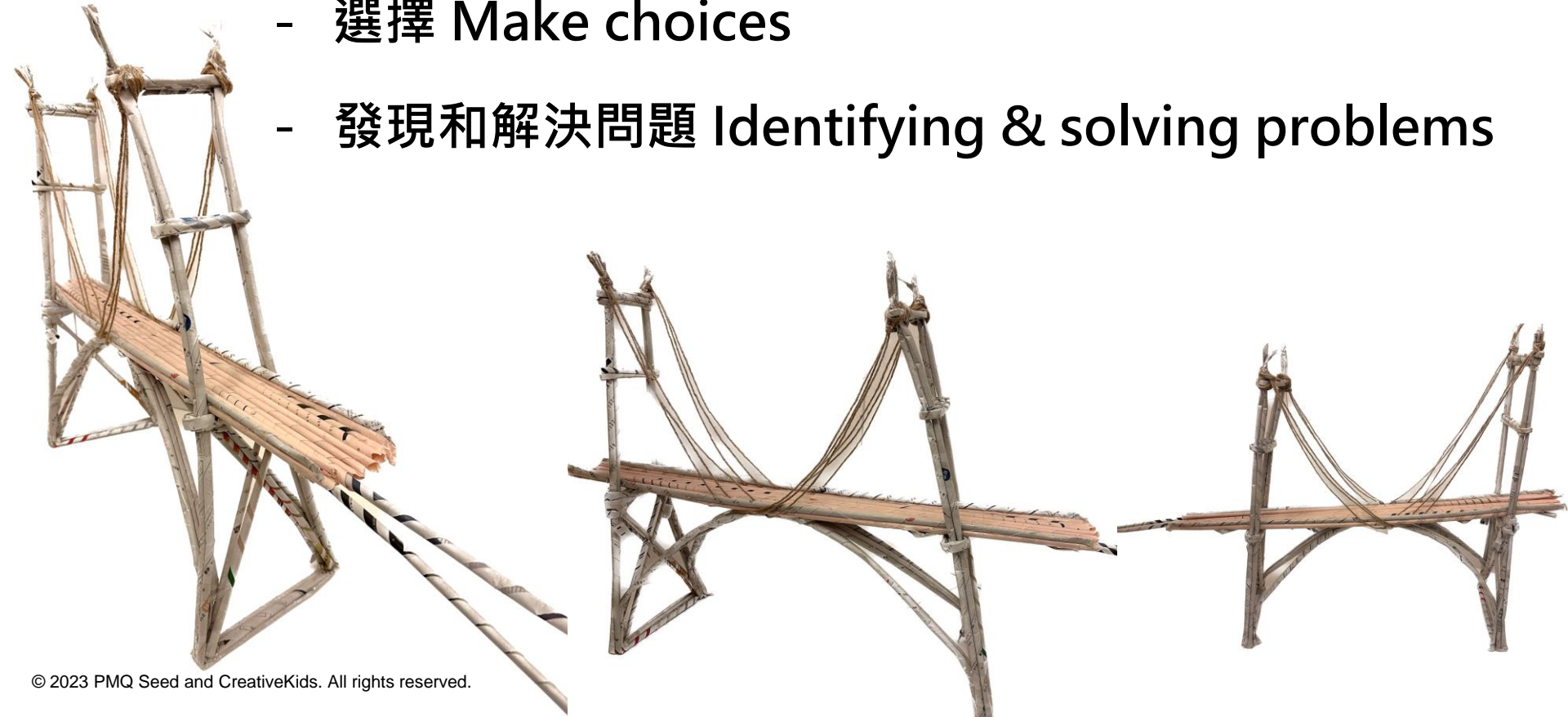
需用上兩條報紙條，交疊形成十字，接著用膠紙在重疊的位置，用膠紙橫跨左右兩邊凹位黏穩。再多用一條膠紙跨過上下凹位黏穩。

捉住兩條報紙條末端輕搖，確保「x字形」結構穩固。



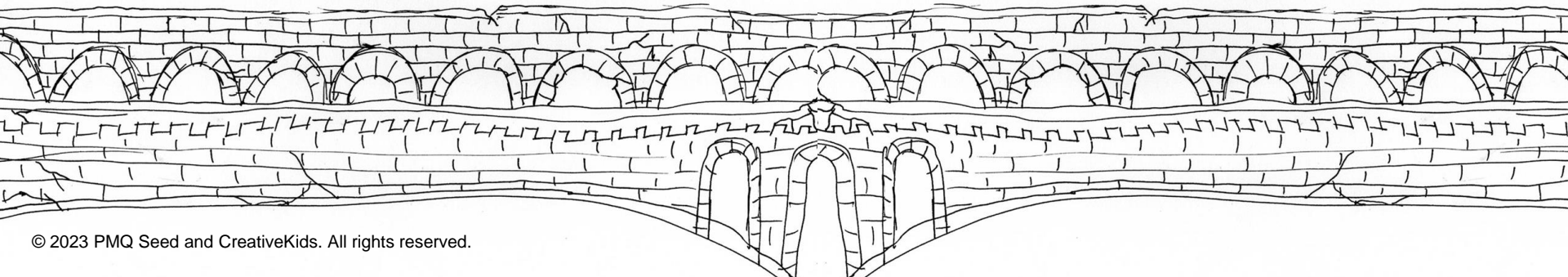
設計思維 Design Thinking

- 以人為本 People-oriented
- 選擇 Make choices
- 發現和解決問題 Identifying & solving problems



橋樑建造

1. 建造橋面
2. 設計並建造支撐
3. 加固結構
4. 裝飾造型





- 兒童連結時間
Kids Connect Time

- 反思和討論
Reflection