The G5 KCFS Gazette

Kang Chiao International School, Hsinchu Campus, International Department

Vol. 4, No. 4E – July, 2020

Bridging the Gap

Balancing Act

We see bridges every day, most of us will have to cross over a bridge on our way to work, school or while taking a trip. Bridges can be as simple as a log laid across water or extremely complicated. All bridges, whether simple or not, have one thing in common. They must have a balance of tension (stretching) and compression (squeezing) to be stable.

Students began with a lab to explore how forces are at equilibrium and how good construction will play into forces staying in equilibrium. The project culminated with students building their model bridges where they had the opportunity to test them to failure and reflecting on ways to redesign their bridges base on the testing results.

Structural Integrity

Through investigation students learned about the effects of force, they explored measurement and conversion by applying their knowledge of the metric system and showed their understanding of the design process to build and test their bridge. We are confident that the students will have a better appreciation of the important role that structural engineers play in our communities.

平衡作用

我們每天都會看到橋，大多數的人在上班、上學或旅途中都會經過橋。橋樑可以是木頭橫跨水面一樣簡單，也可以非常地複雜。所有的橋樑，不論簡單或複雜，都有一個共同點：它們必須在張力（延伸）及壓力（擠壓）之間取得平衡才能保持穩定。

學生一開始透過實驗，學習力如何處於平衡狀態，以及了解良好的結構如何使力取得平衡。這個專題的目標是讓學生建造橋樑模型，並挑戰負重測試，思考如何根據測試結果改良他們的橋樑。

結構完整性

學生透過研究，了解力的作用，運用公制知識測量及單位轉換，透過對設計過程的了解後，建造及測試橋樑。相信學生對結構工程師在社區裡的重要性有更進一步的理解。

ASK + IMAGINE
提問 + 創思

How do we ensure that our bridge will be strong enough?

我們要如何確保橋樑夠堅固？

PLAN
計畫

We put our thinking hats on and planned carefully!

我們仔細思考並小心計畫！

CREATE
創作

Building was a team effort!

建造橋樑需要團隊共同努力！

IMPROVE
改進

We used the strength test to see where we could improve our design.

我們用負重測試來改進橋梁的設計。