

Structure in paper chair

結構紙椅

Yong-Ren High School



Cardboard box recycle and reuse

廢紙箱資源再生

There are a lot of abandoned cardboard boxes at school, which can be used to make paper chairs. Make waste resources available for reuse.

學校有很多不要的紙箱，正好可以利用來做成紙椅，讓廢棄資源可以得到再利用。



SUSTAINABLE DEVELOPMENT GOALS



In sustainable Development Goals : We achieve goal 12.Responsible Consumption and Production

在聯合國永續發展目標中，我們符合
目標12：確保永續的消費和生產模式



What are structures?

結構是什麼？

In this lesson, I learned ...

A structure is a system of force transmission.

A structure is an organization of interrelated elements in a material object.

在這個課程中，我學到...
結構就是「力的傳遞系統」。
結構能將個別元素及材料「有系統」地結合為一體。



Experiment of force transmission

力的傳導路徑小實驗

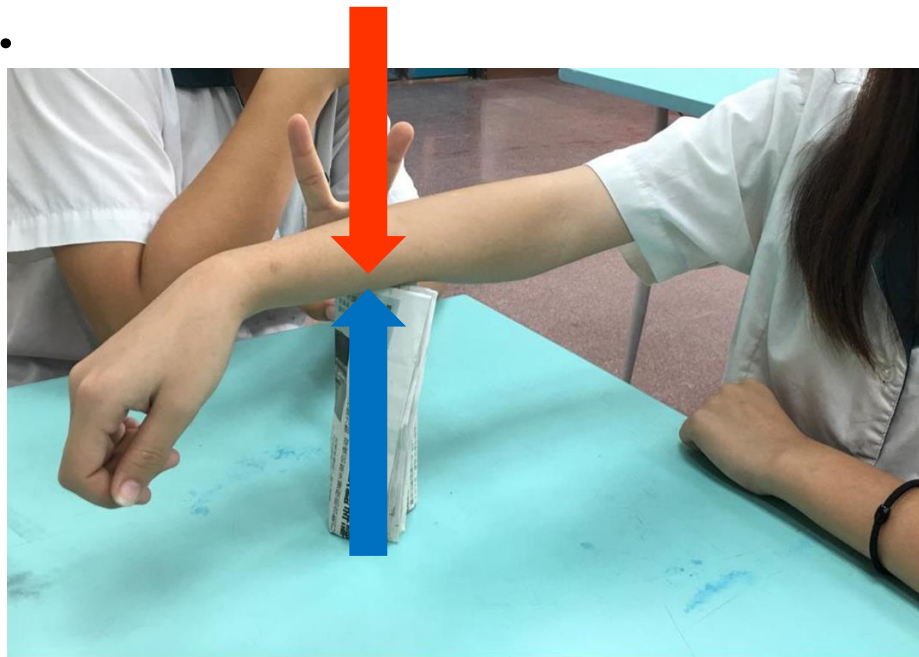


We think about how to support the arm by using newspaper.

如何利用報紙支撐手臂

Some people use **load-bearing system.**

下方支撐法

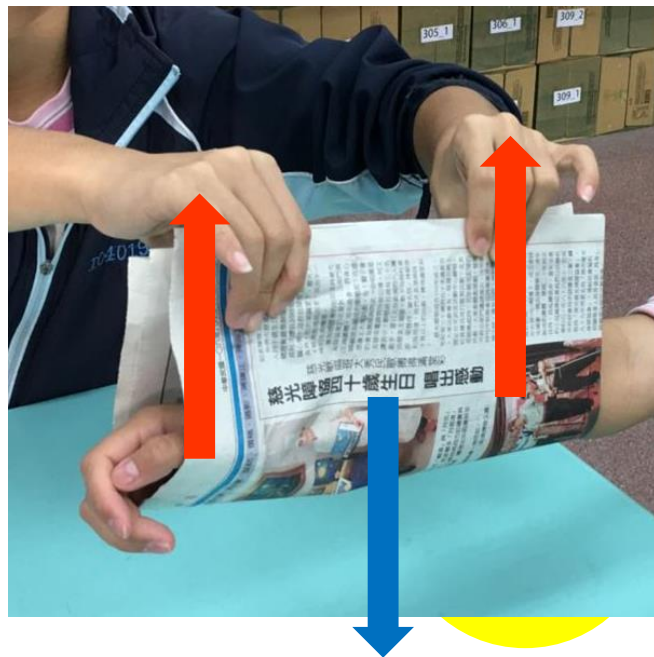


Experiment of force transmission

力的傳導路徑小實驗

Some people use
suspension system.

上方懸吊法





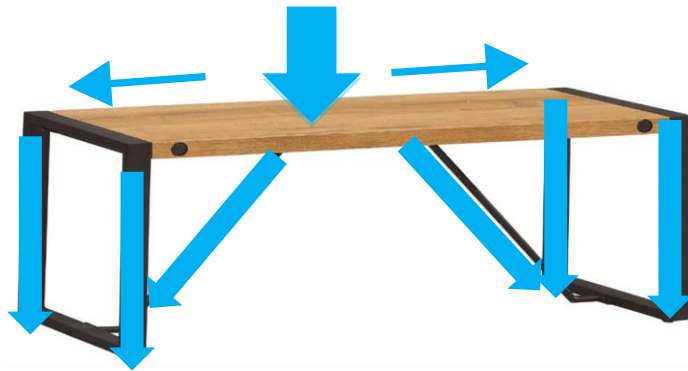
In this experiment, I learned ...

力的傳導路徑小實驗中，我學到...

Changing the structure can change the transmission path of the force.

As long as the force can be successfully transmitted to the ground, the structure can hold up.

改變結構就能改變力量的傳導路徑，只要能夠順利將力量傳導到地面，這個結構就能撐住。



When we look at a structure, we can observe the **flow** and **transmission paths of force** inside.

請看出結構之中力的流動與傳導路徑

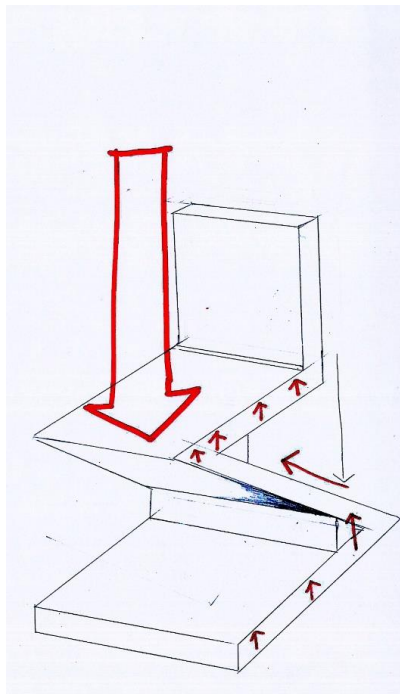
We find out the flow of **invisible forces**, and how they are transmitted to the ground.

□ 看出隱形的力的流動，力如何被傳導到地面

We did a lot of chair observations and research.



Experience and research

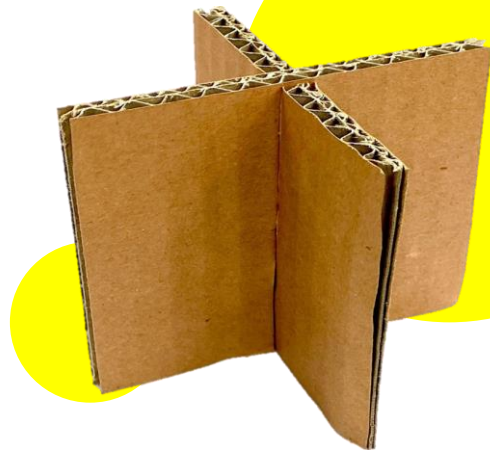


1. 造型、美感、環保兼具於一身白造型椅
 2. 身在復古的咖啡廳, 看著人來人往, 有一種懷舊且枯燥的感覺
 3. 高度太低, 背無法完整的靠著並不舒適
4. 2/2
5. 復古的咖啡廳外
 6. 喜歡, 因為造型美
 7. 在椅子上加一些枕頭, 會更舒適, 也可以加一些圖案, 使之不太單調。

Unit
單元體

The crossing structure

超強十字樑

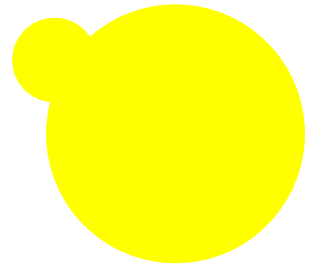


**We found that
structure can resist deformation.**

結構能抵抗形變

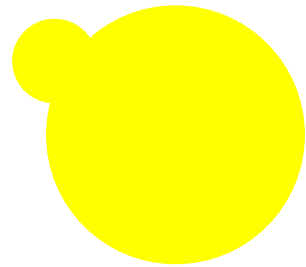
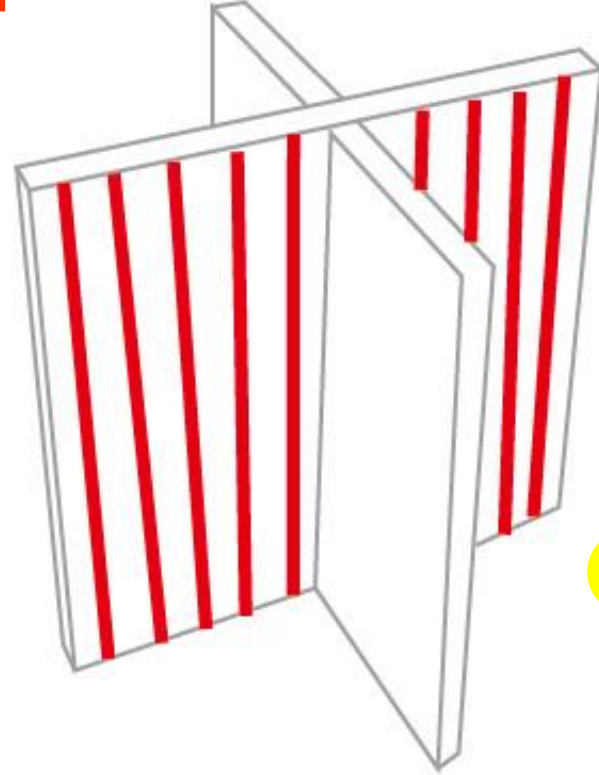
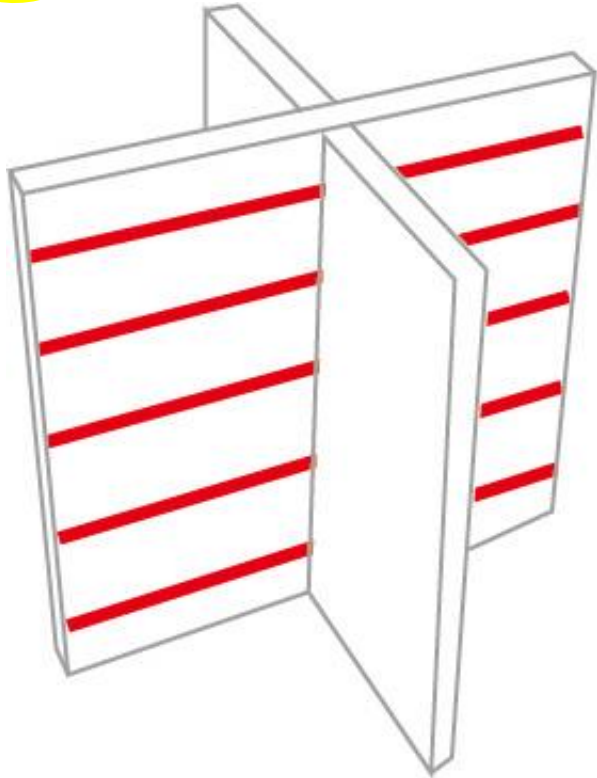


Can you find the difference?



Paper grain: (紋理的方向)

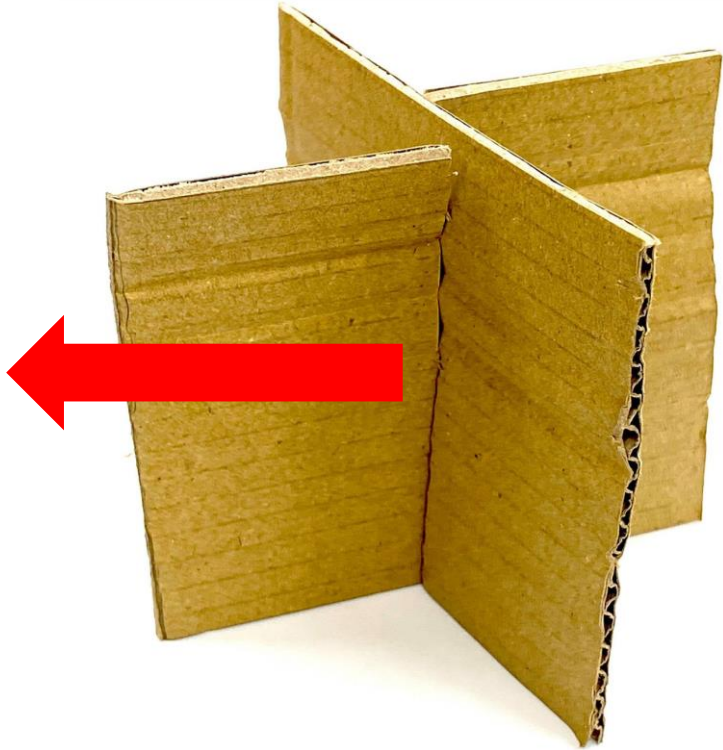
The direction of paper structure



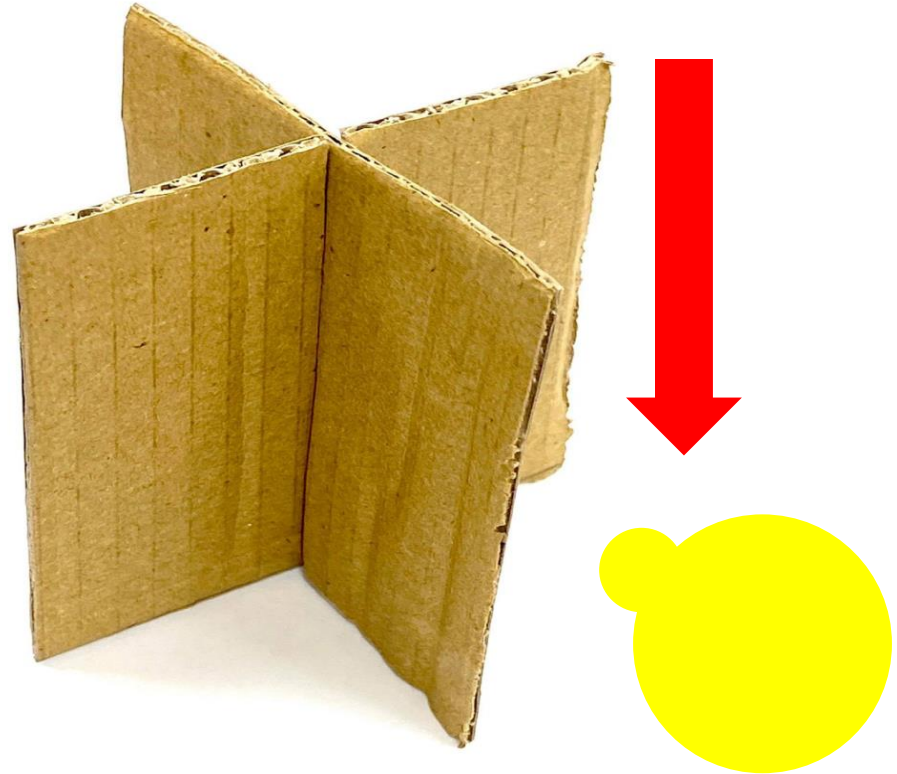
When under pressure...



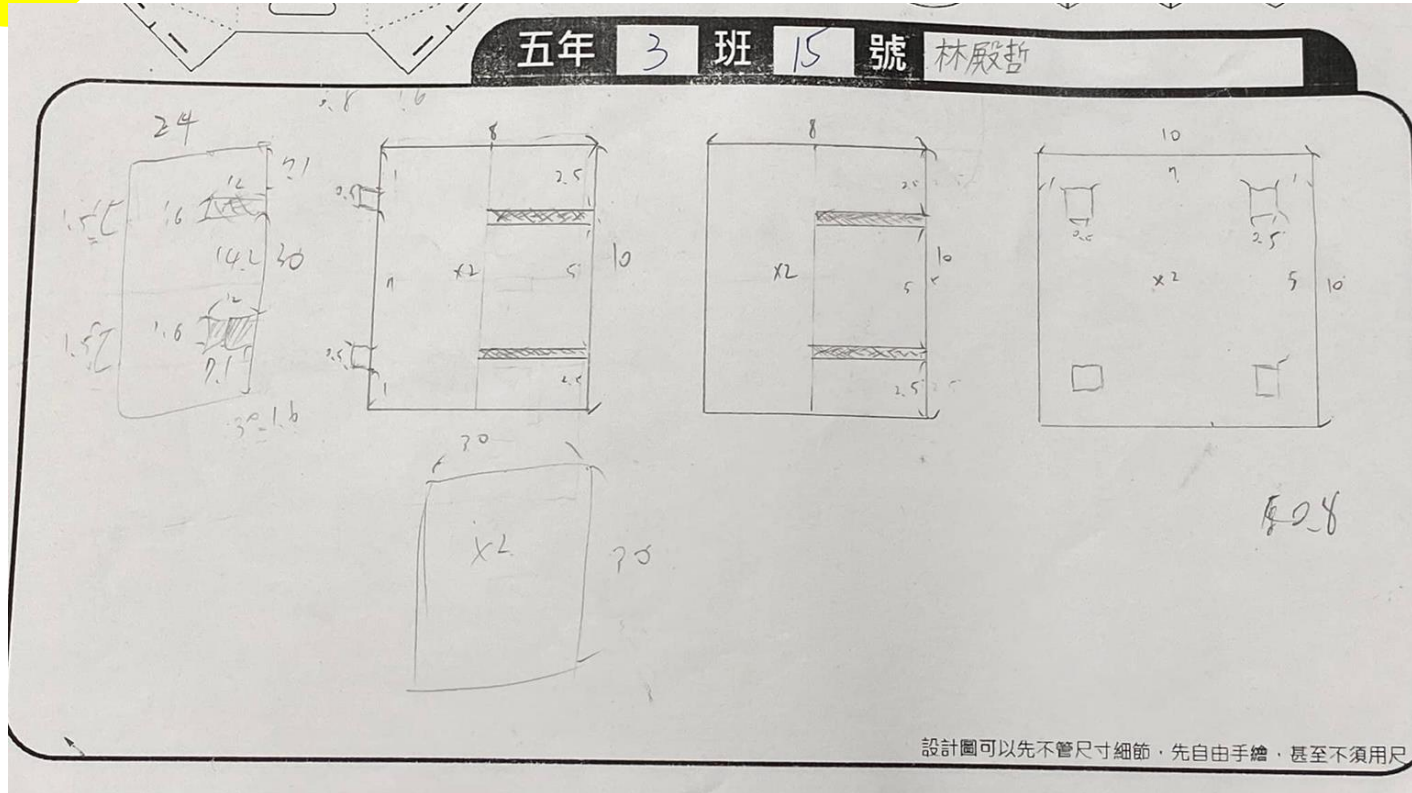
Weaker



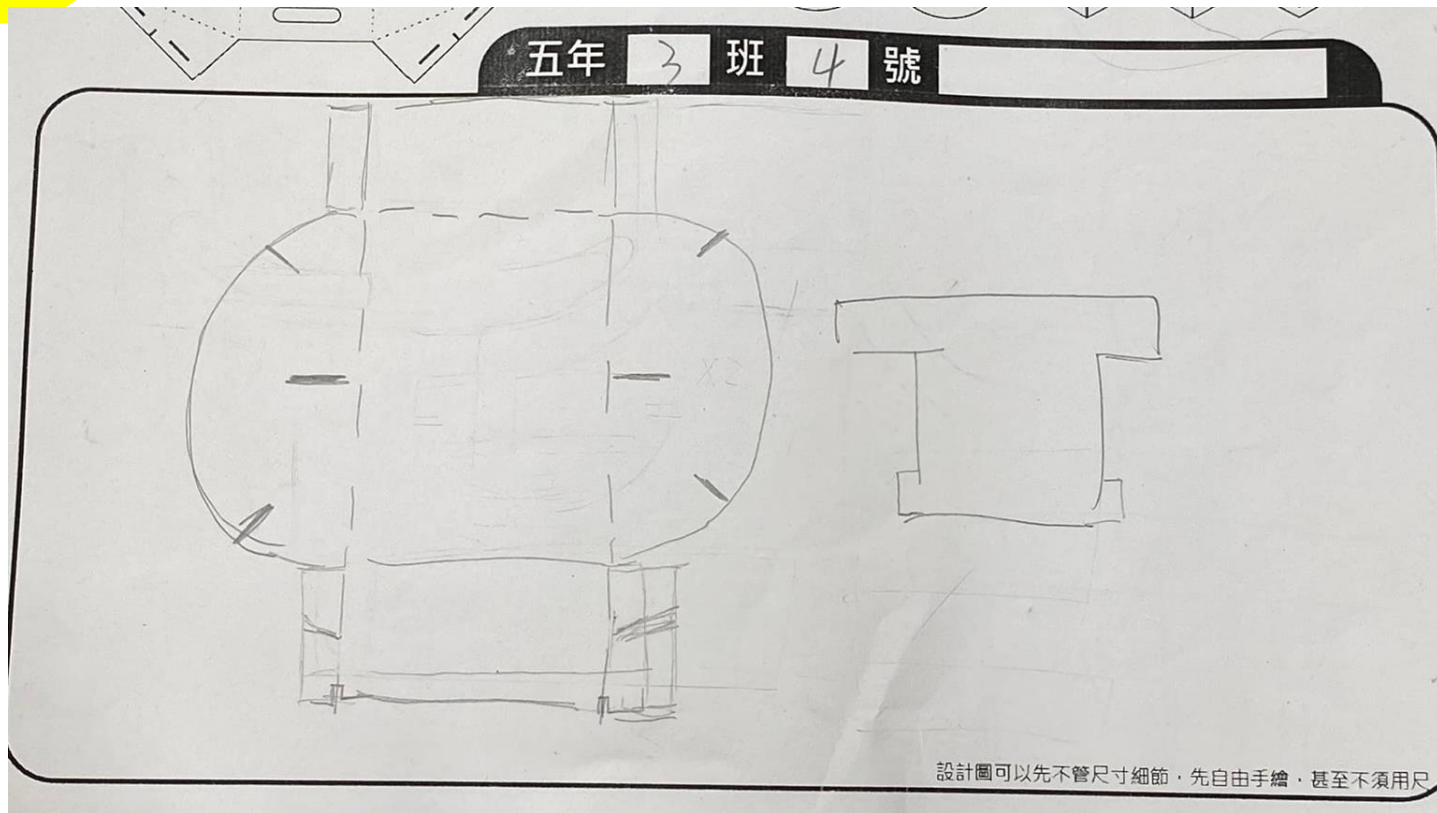
Stronger



Draw design sketches

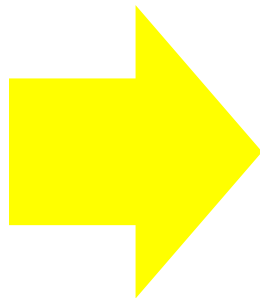
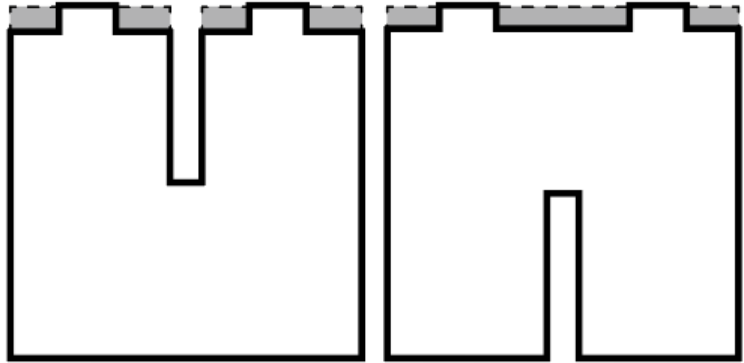
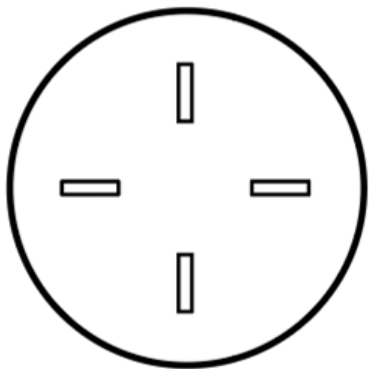
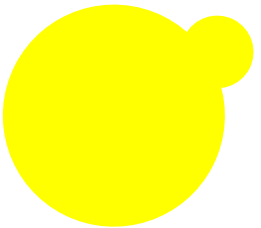


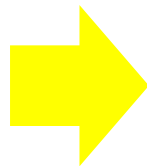
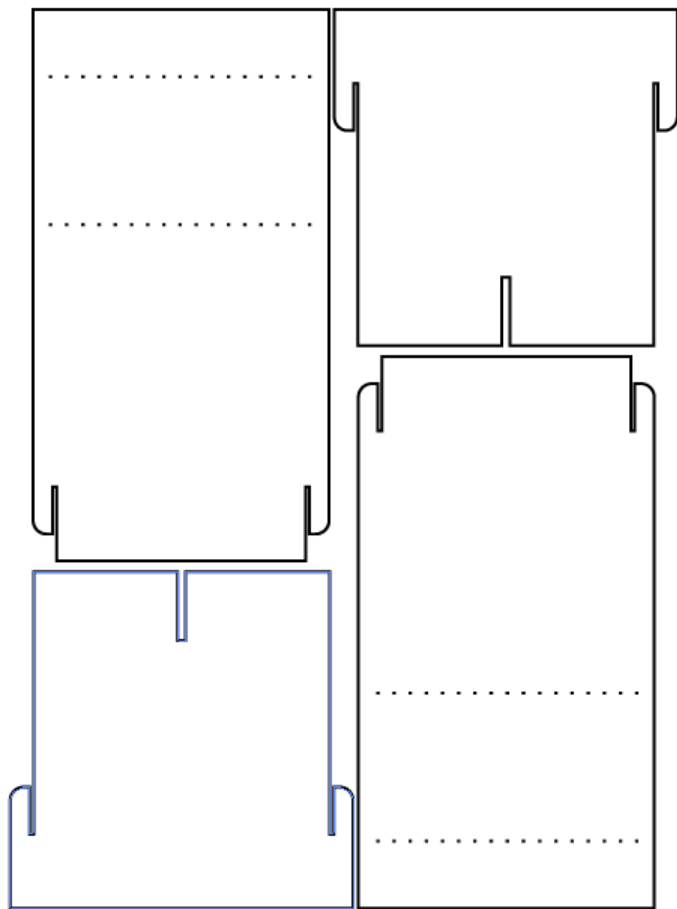
Draw design sketches



We made chair models.





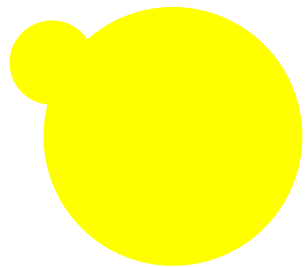
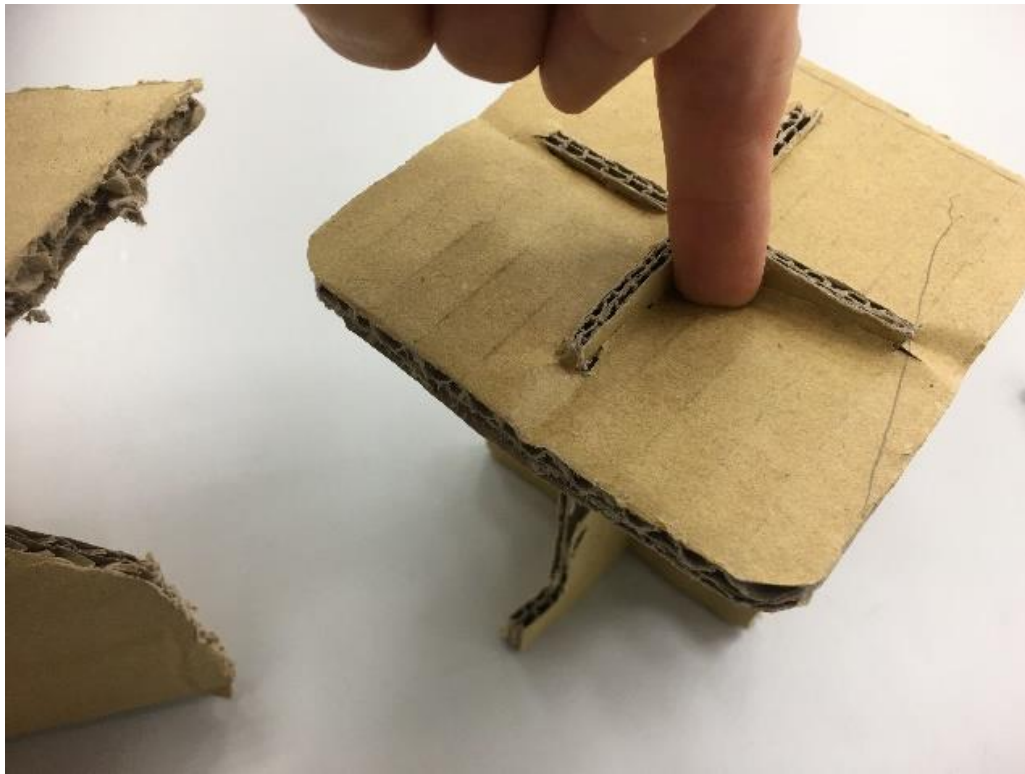


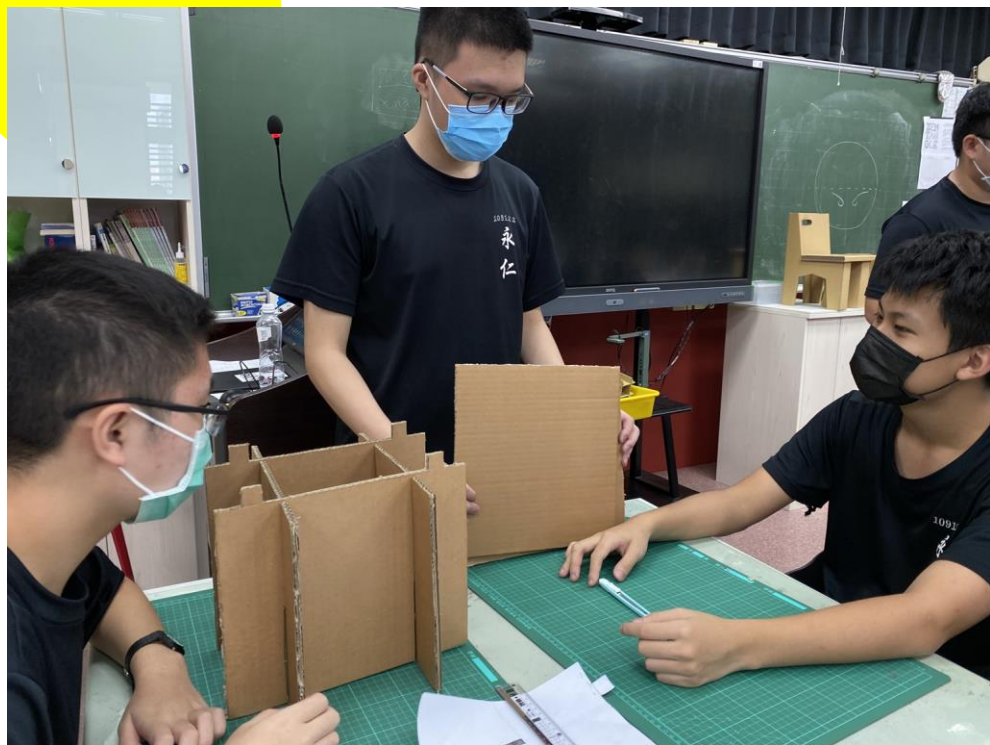
Tips for making paper chairs



Learn from mistakes

從嘗試錯誤中找到好的方法







Our work



chair is circle ,
no less beautiful

Our work



our chair is very simple, but it can handle 70kg