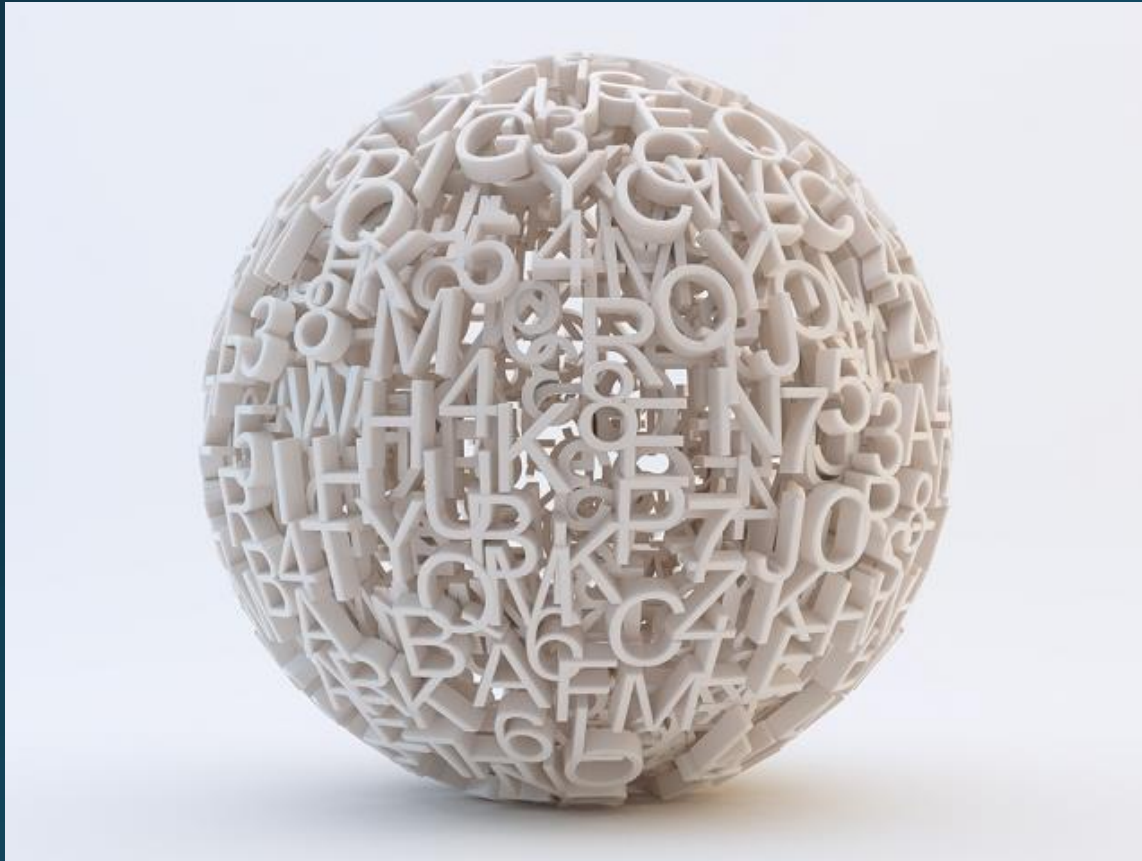




Lecturer: Roger Chu

3D Printing



Why is 3D Printing Going Viral?

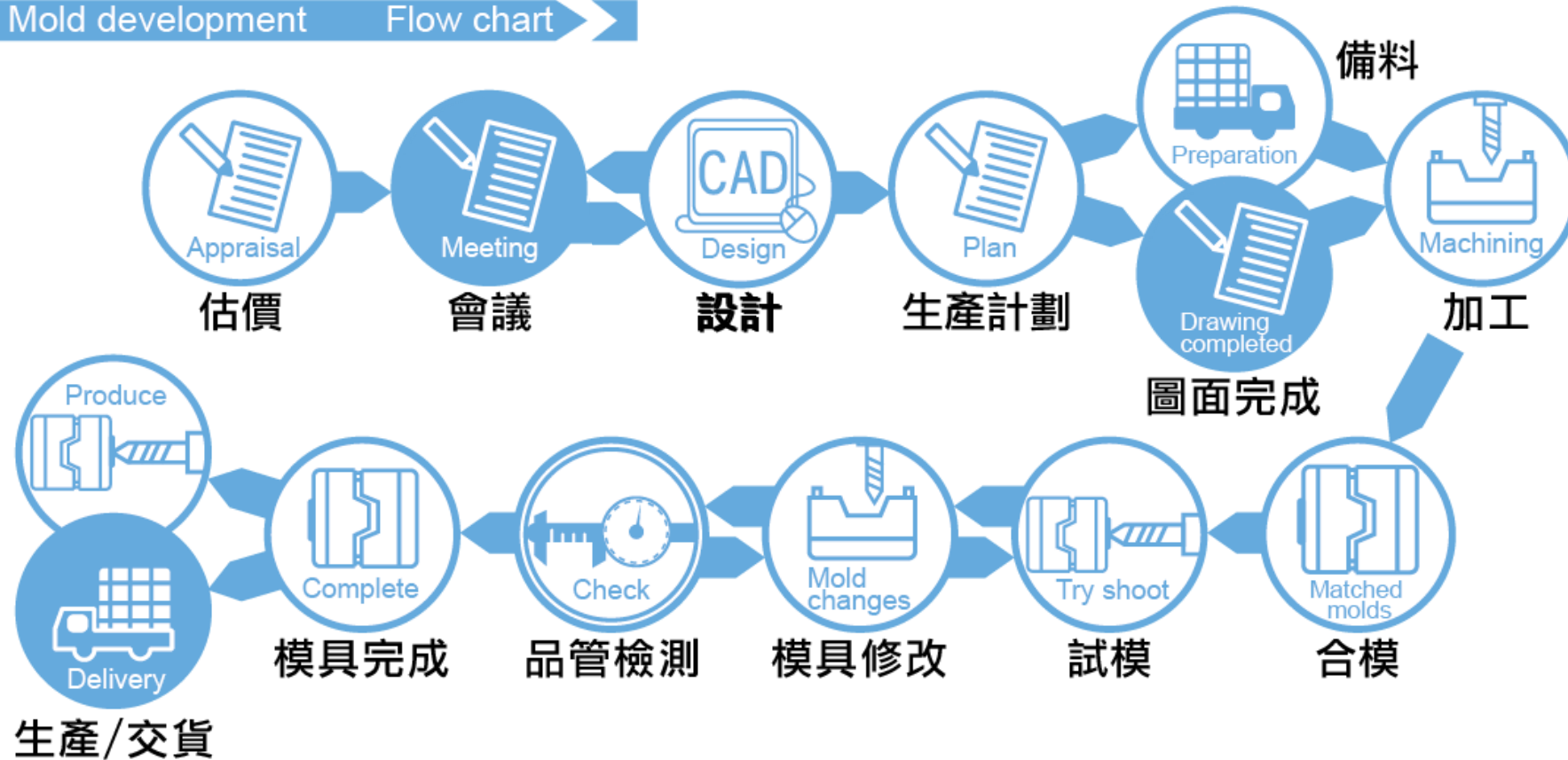
1. 不用模具生產



Why is 3D Printing Going Viral?

模具開發 流程圖

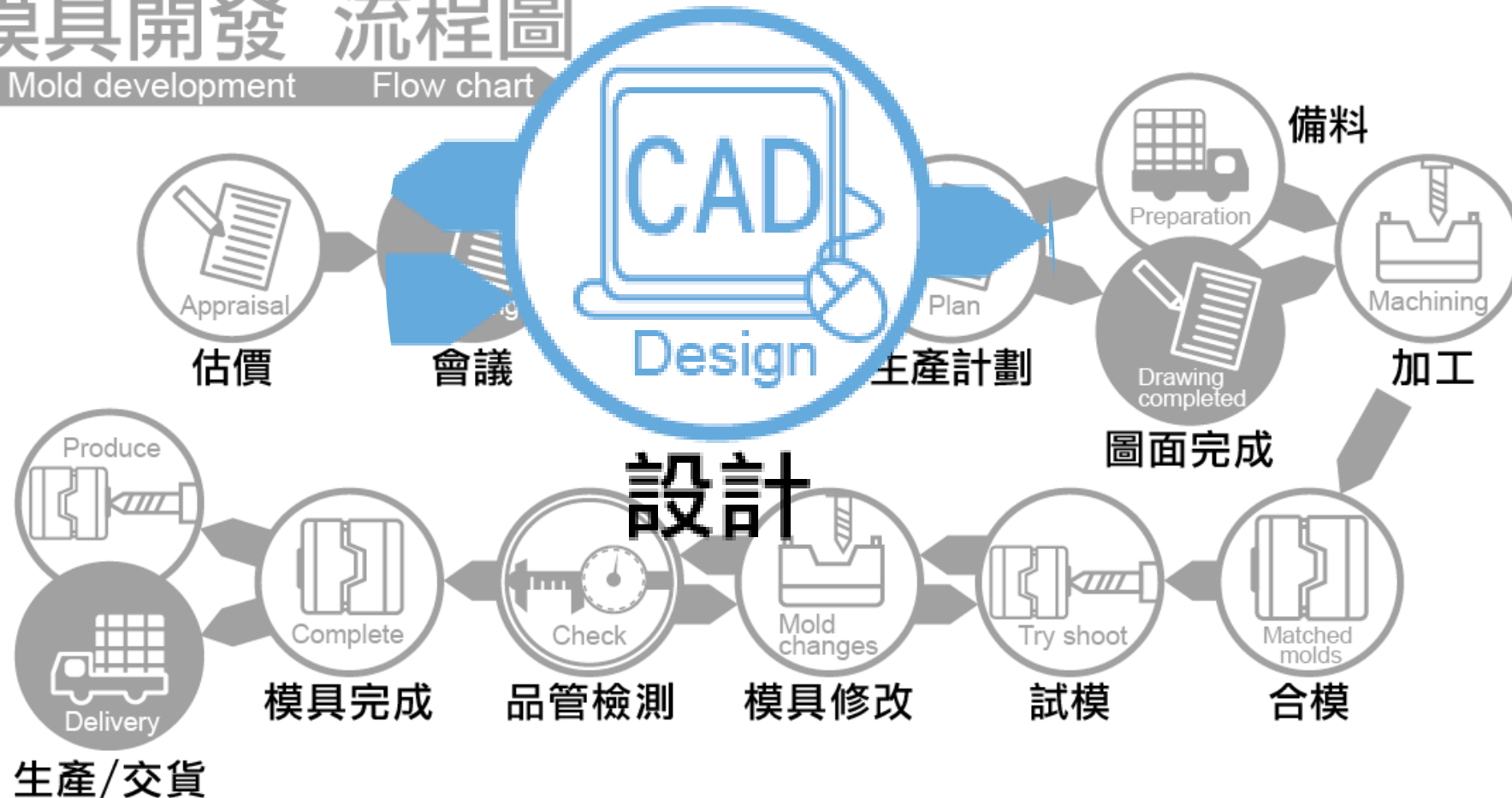
Mold development Flow chart



Why is 3D Printing Going Viral?

模具開發 流程圖

Mold development Flow chart



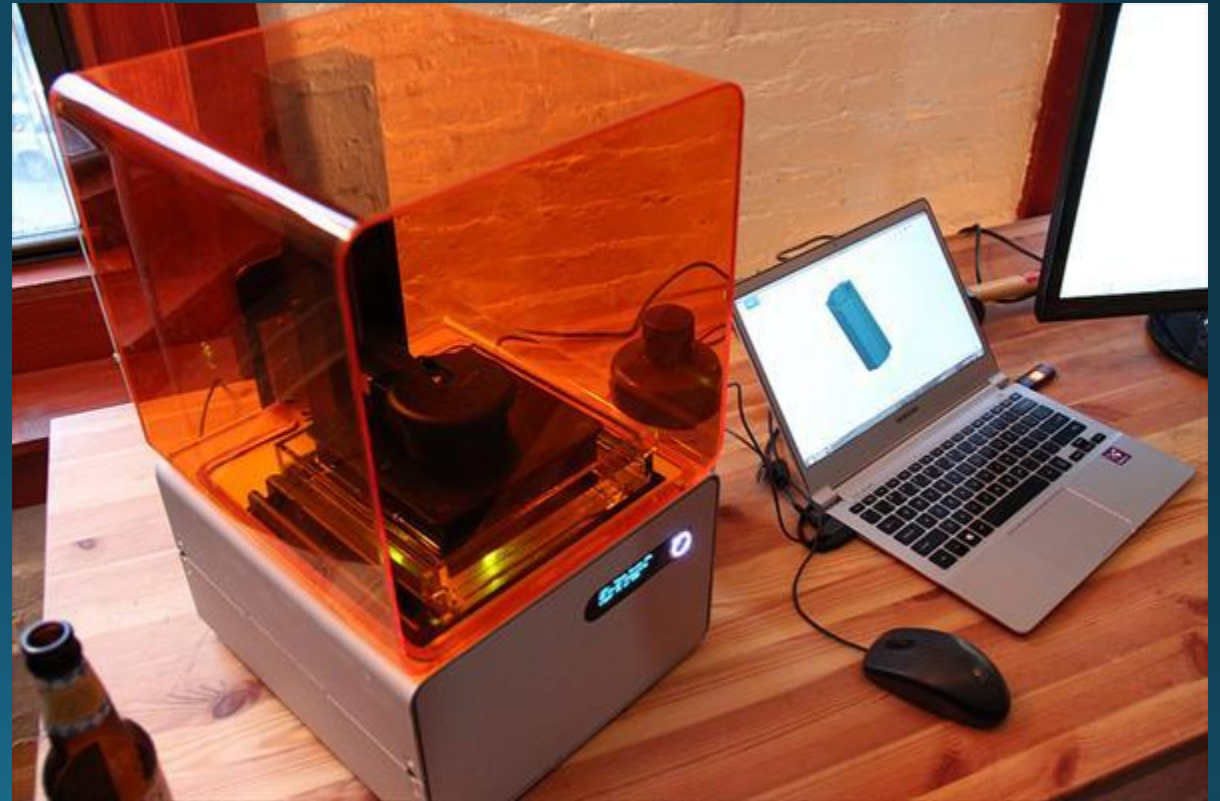
Why is 3D Printing Going Viral?

- 1. 不用模具生產
- 2. 縮短開發週期



Why is 3D Printing Going Viral?

1. 不用模具生產
2. 縮短開發週期
3. 個性化客製化



Why is 3D Printing Going Viral?

1. 不用模具生產
2. 縮短開發週期
3. 個性化客製化

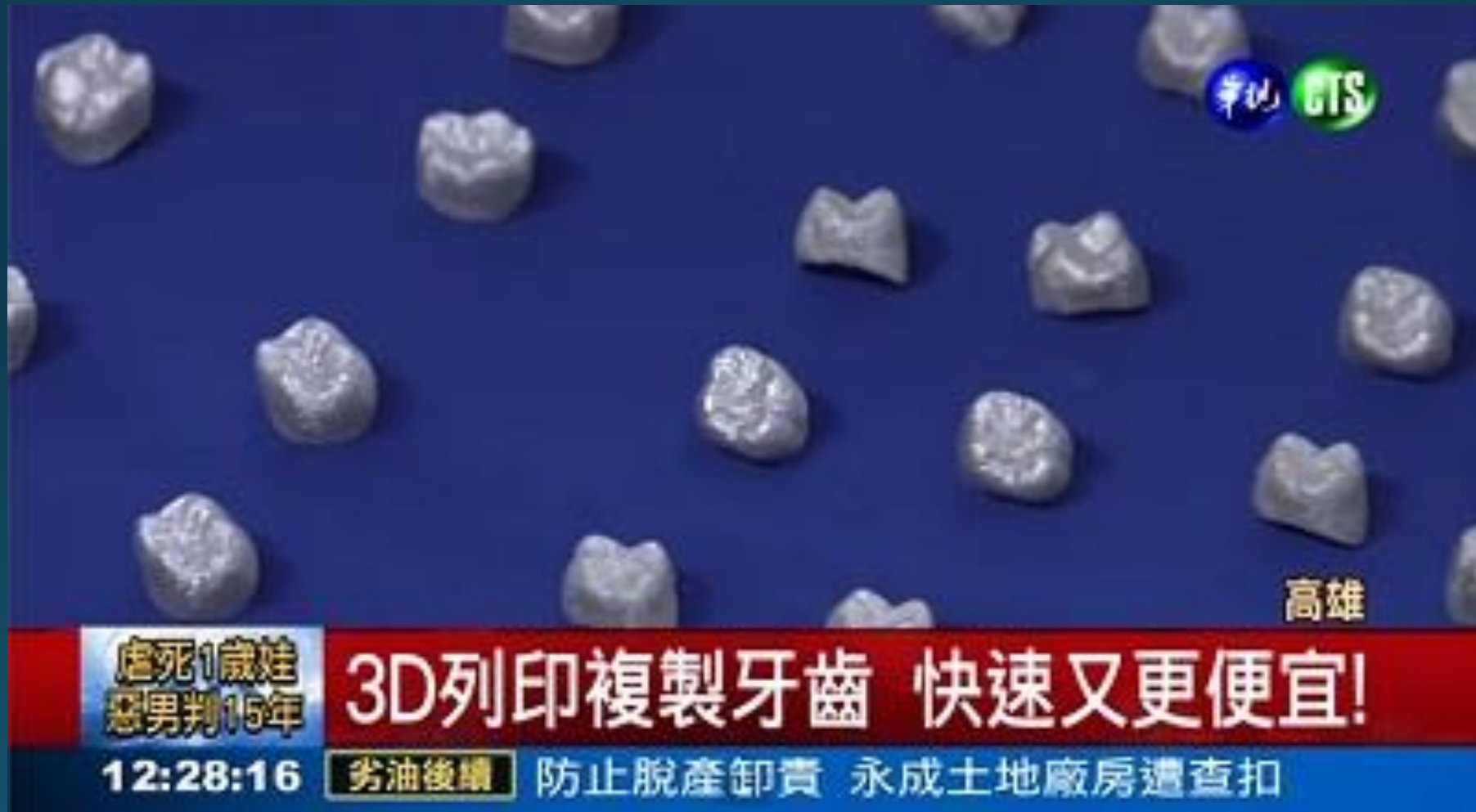


Why is 3D Printing Going Viral?

- 1.**不用模具生產
- 2.**縮短開發週期
- 3.**個性化客製化
- 4.**用於醫療用途

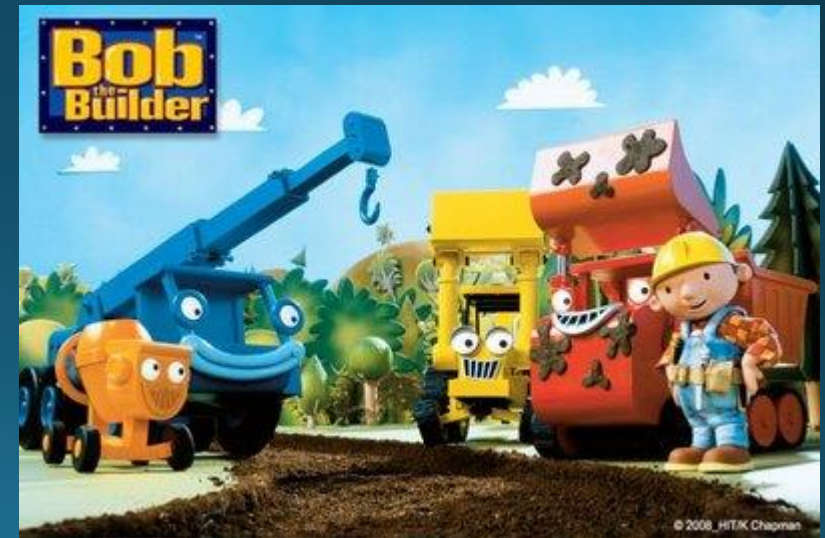


Why is 3D Printing Going Viral?



What is SketchUp?



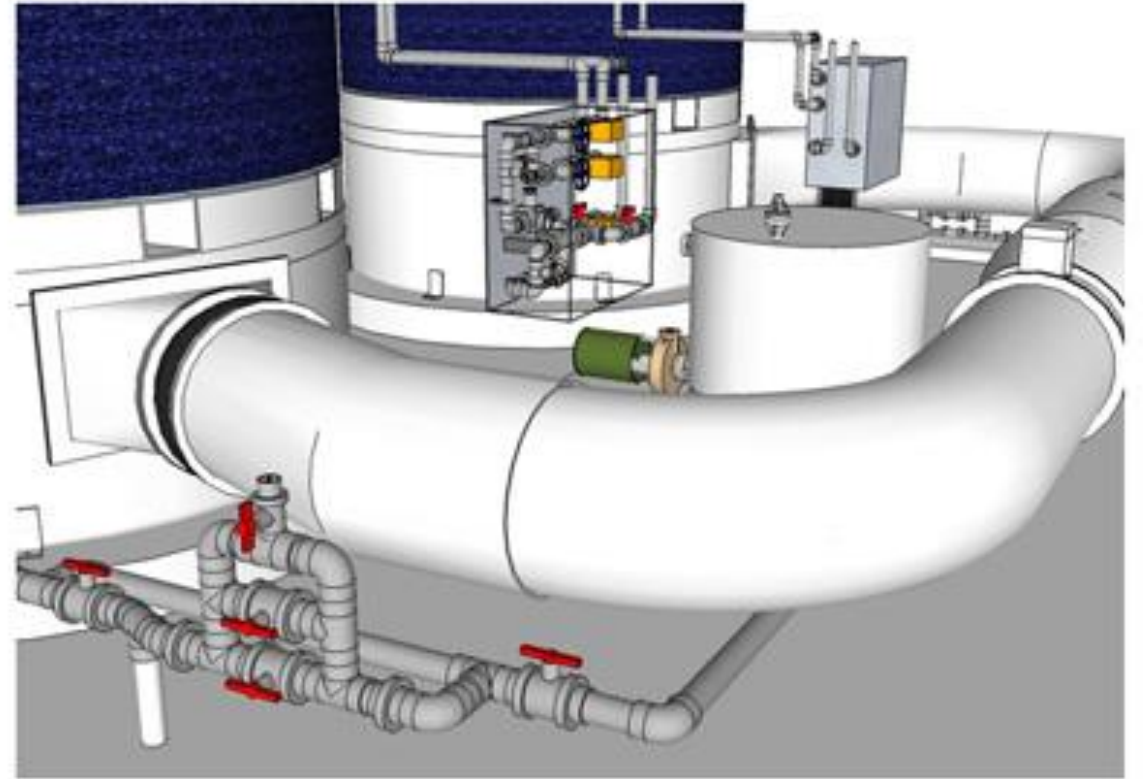
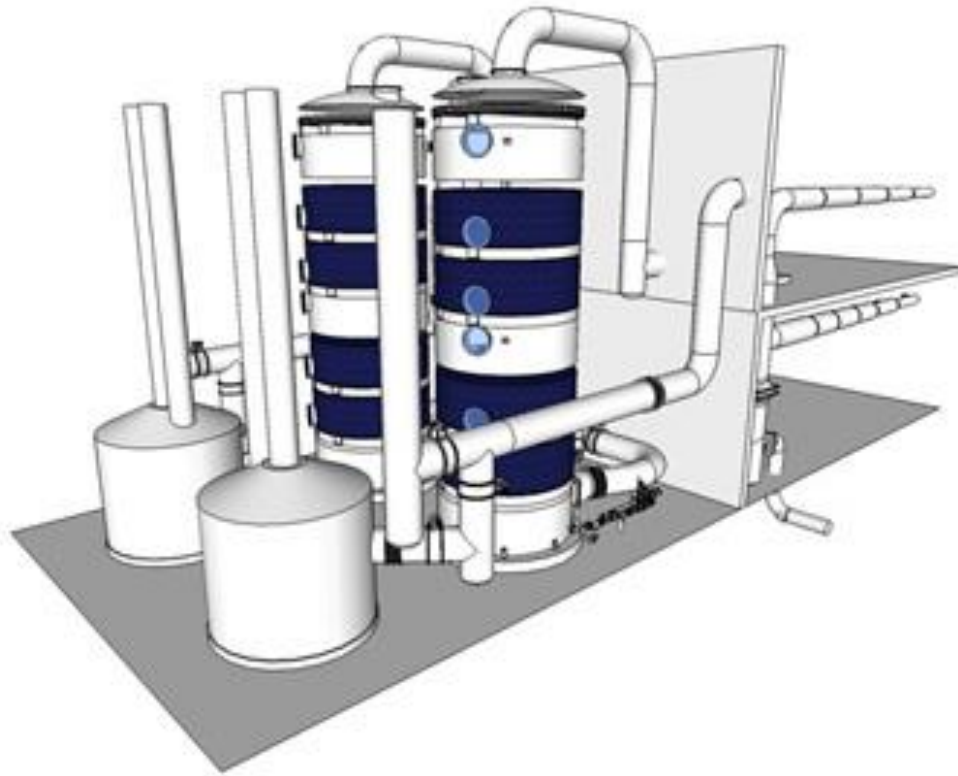


What is SketchUp?



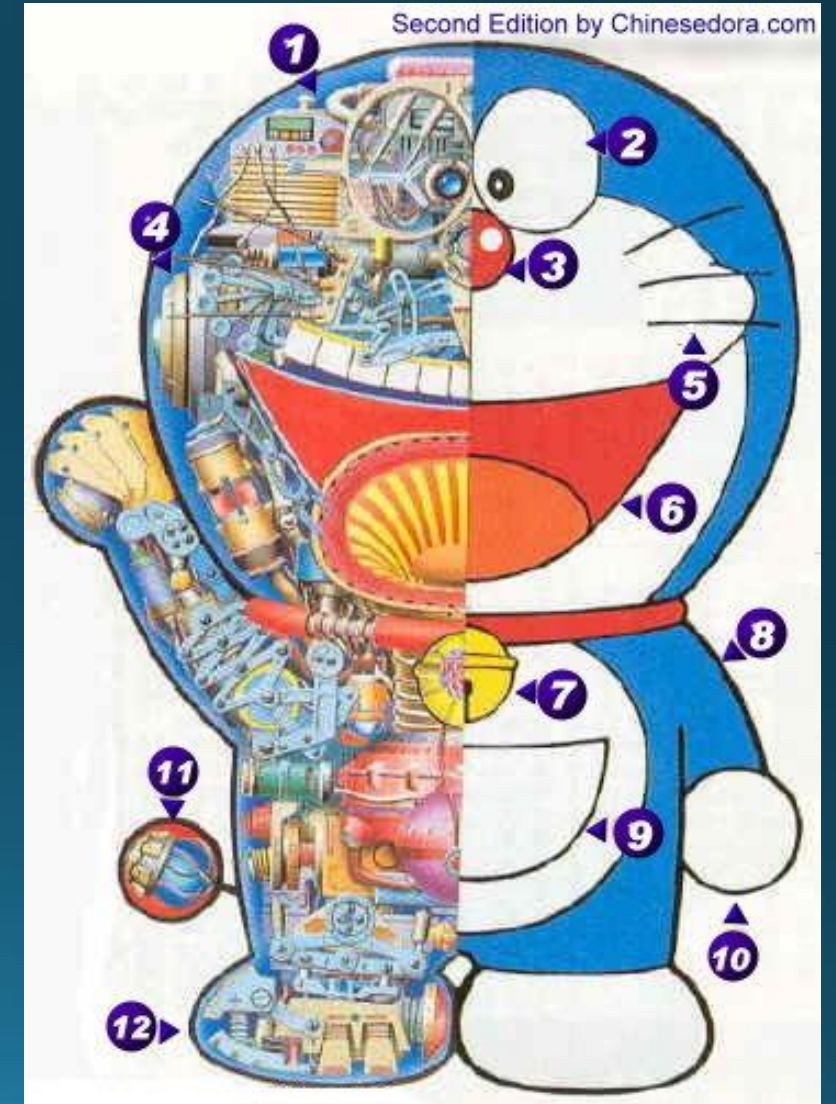
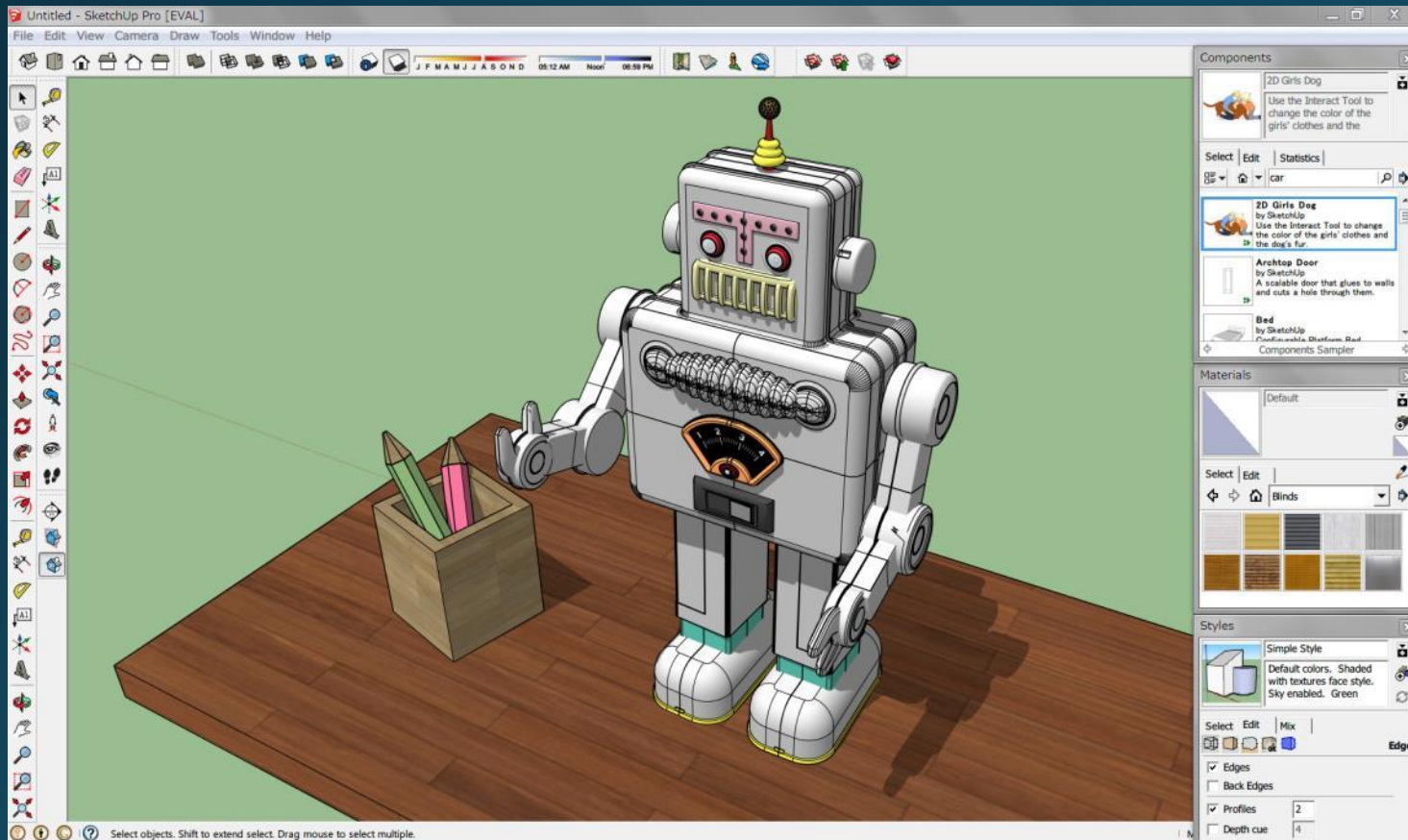


What is SketchUp?





What is SketchUp?

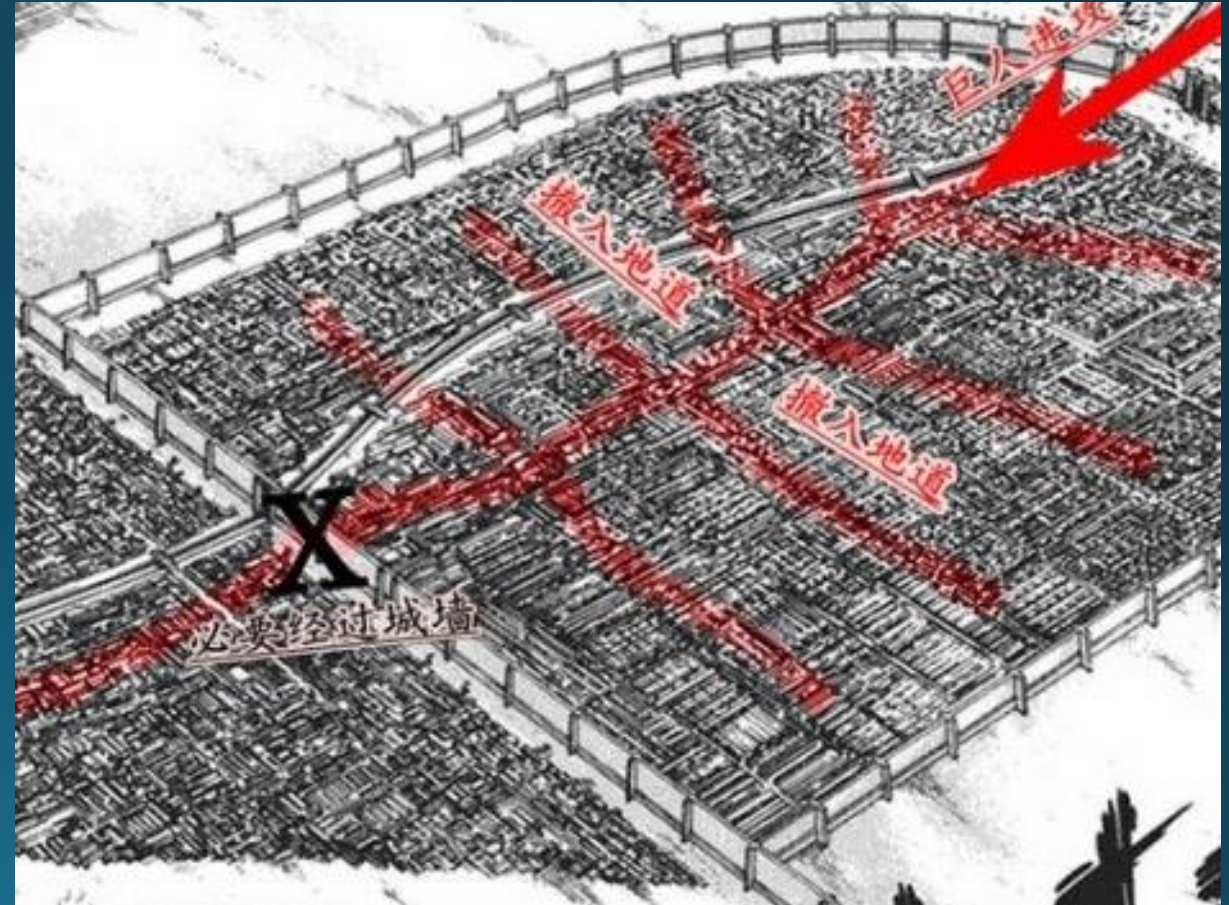


What is SketchUp?

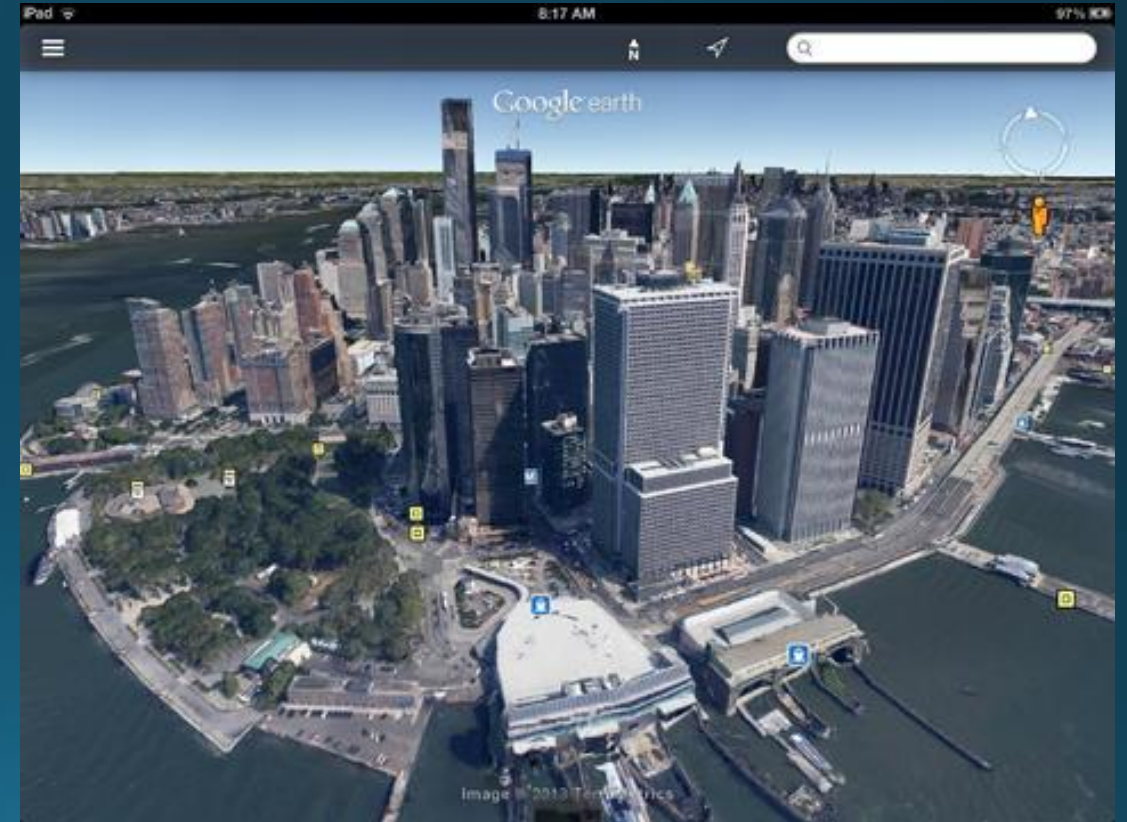




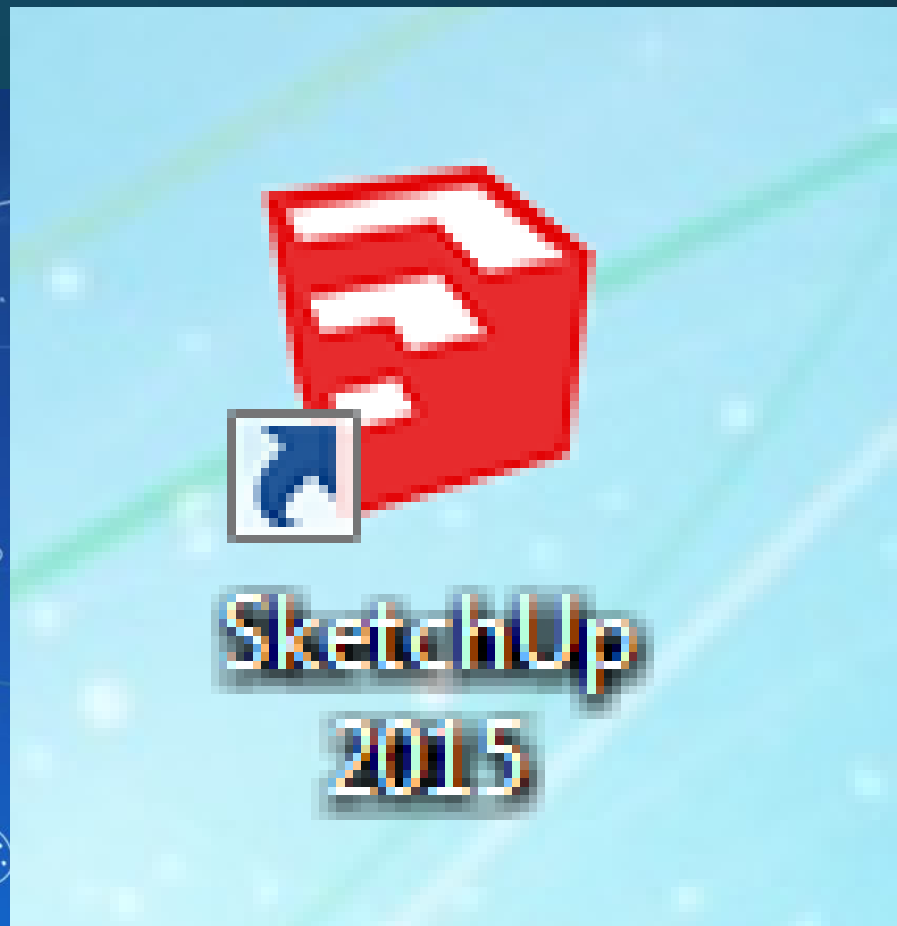
What is SketchUp?



SketchUp and Google Earth



開啟SketchUp



開啟SketchUp



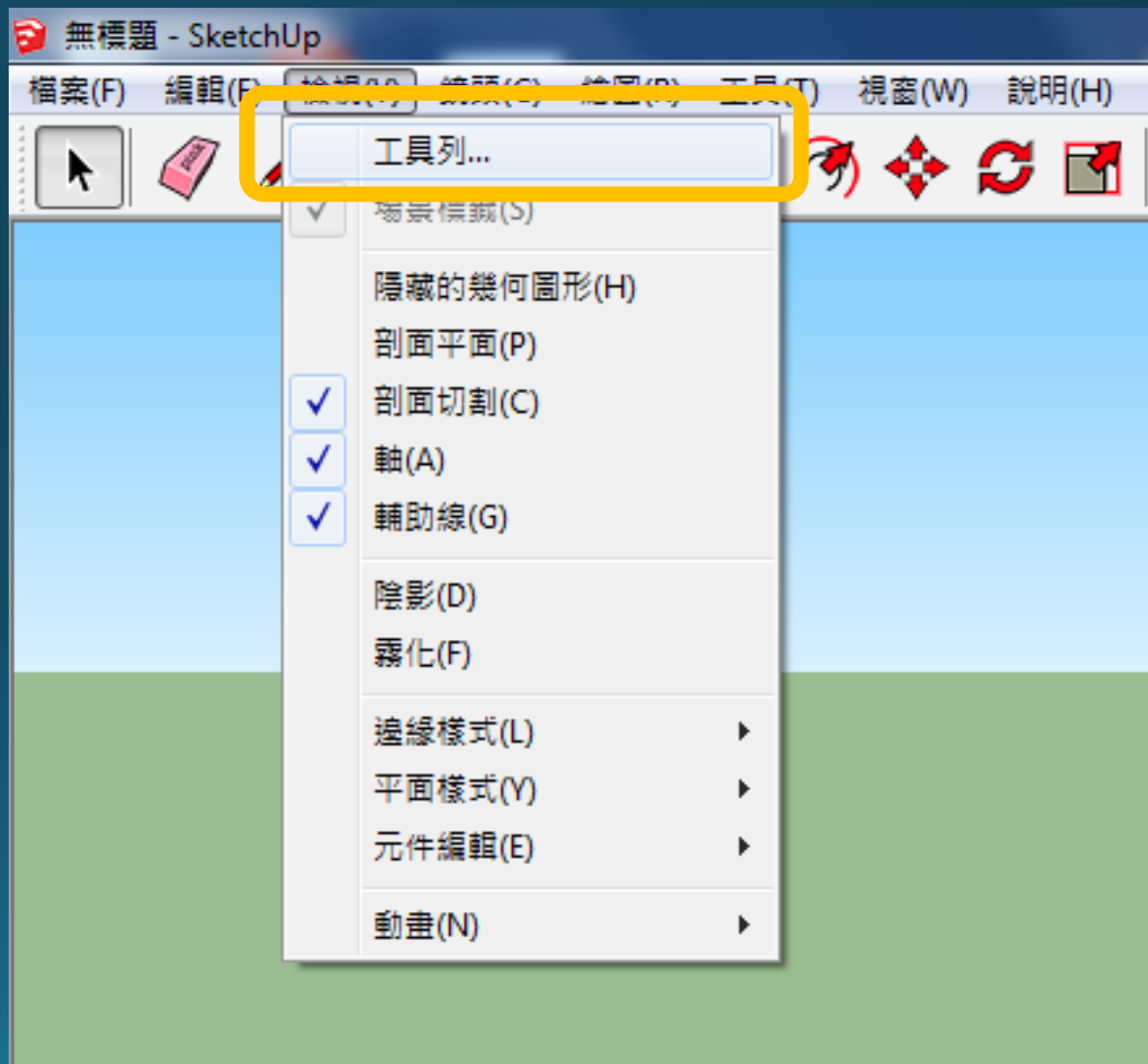
調整工具列

檢視



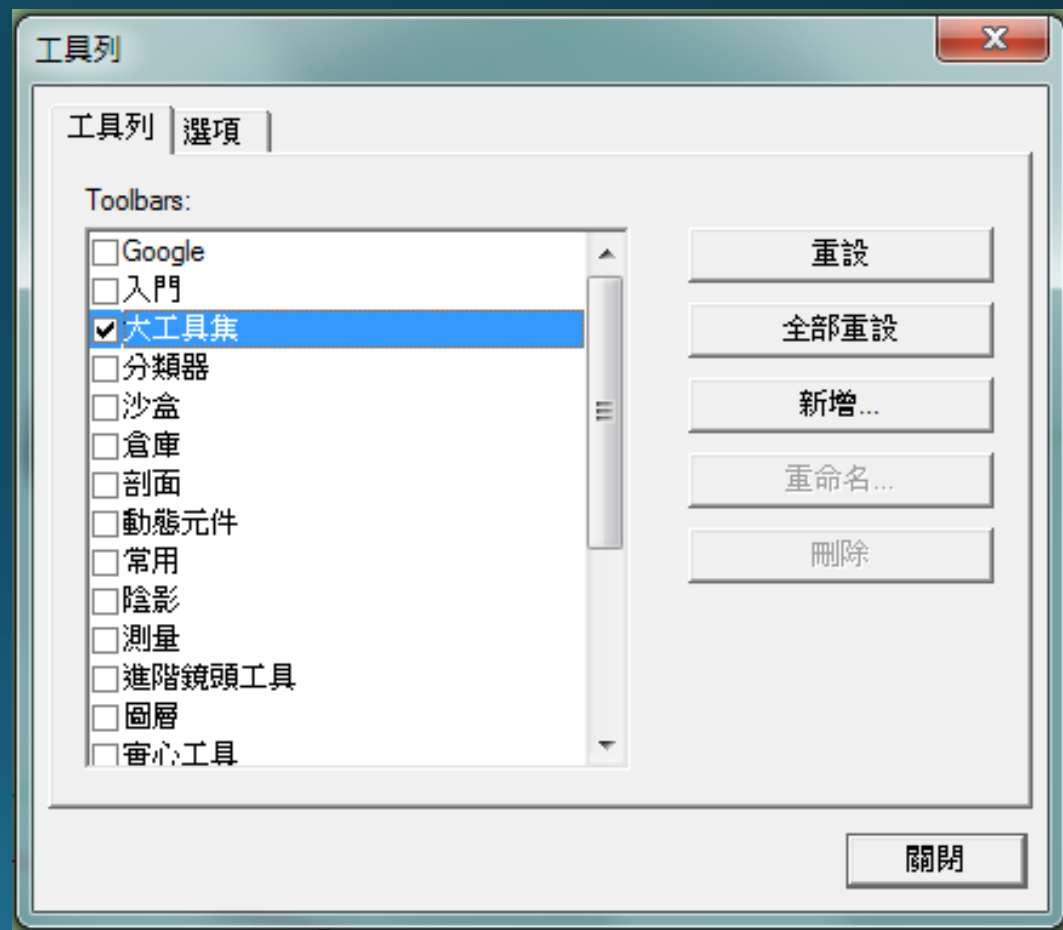
調整工具列

檢視->工具列



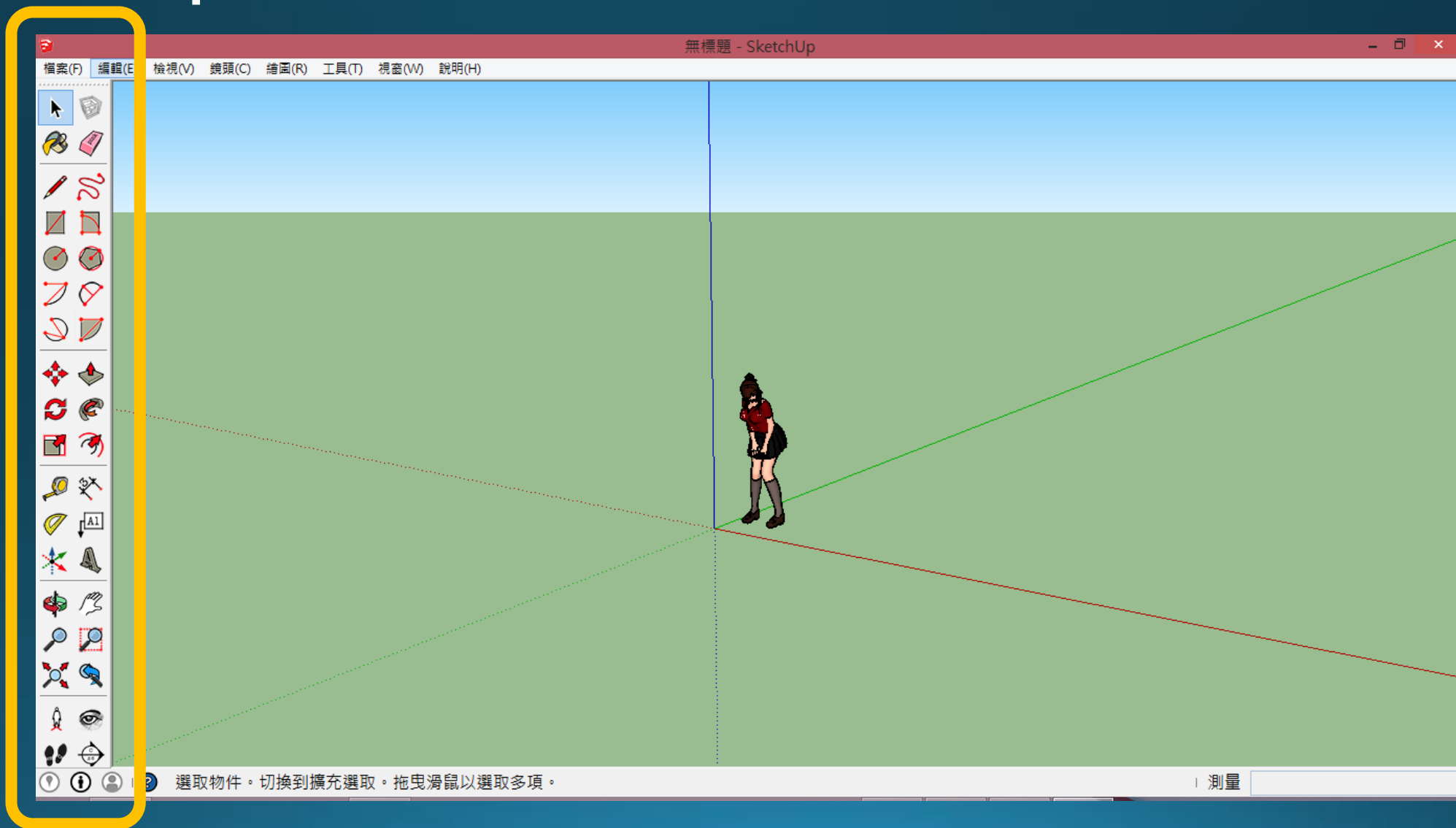
調整工具列

檢視->工具列->大工具集(打勾)

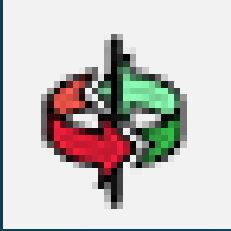


SketchUp 介面

工具列



SketchUp基本操作



環繞

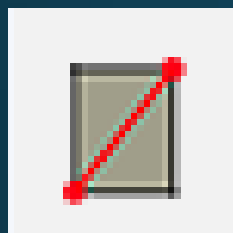
= 下壓滑鼠滾輪



平移

= **shift** + 下壓滑鼠滾輪

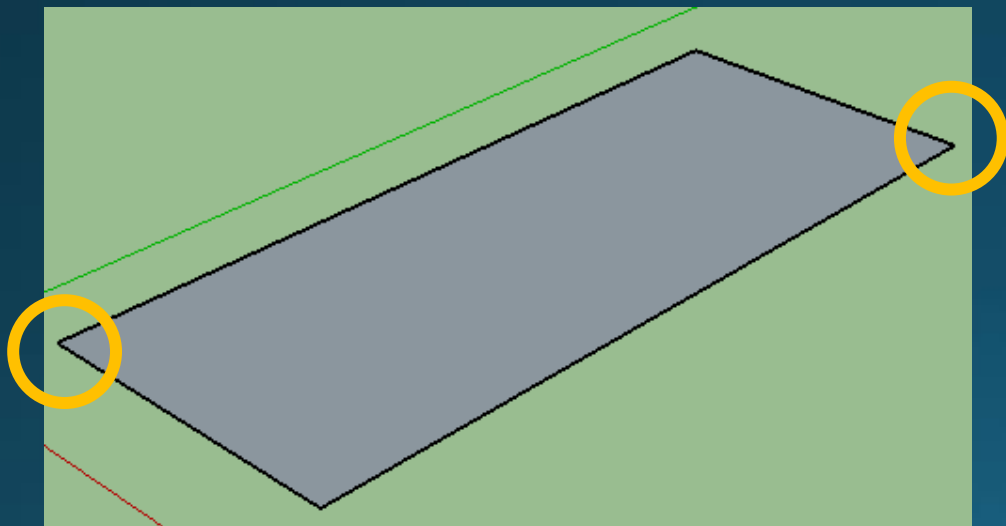
SketchUp基本操作



矩形

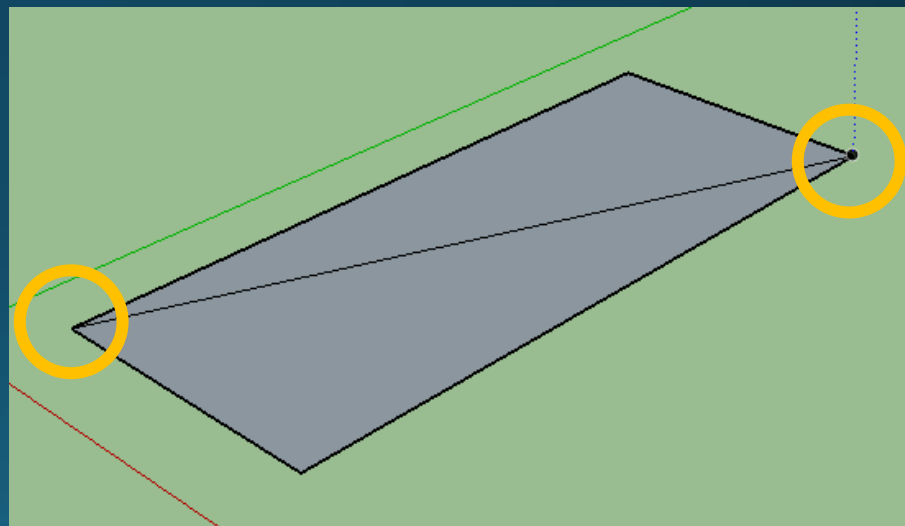


直線



Start

End



Start

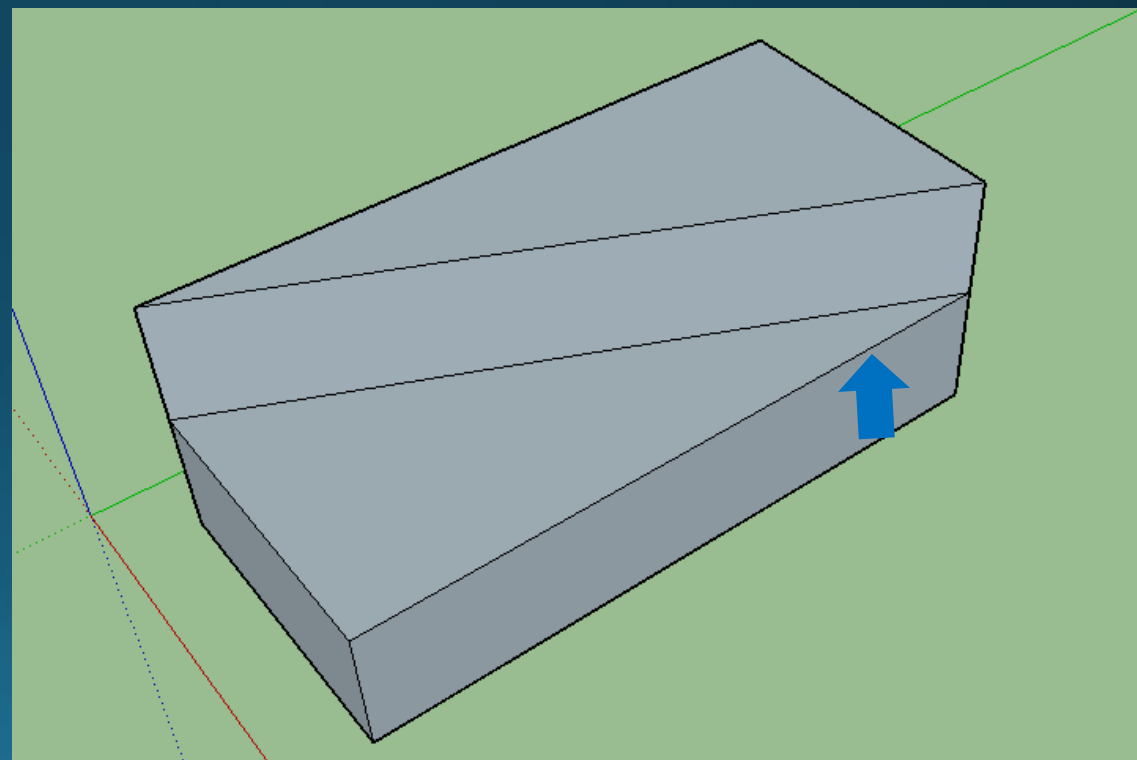
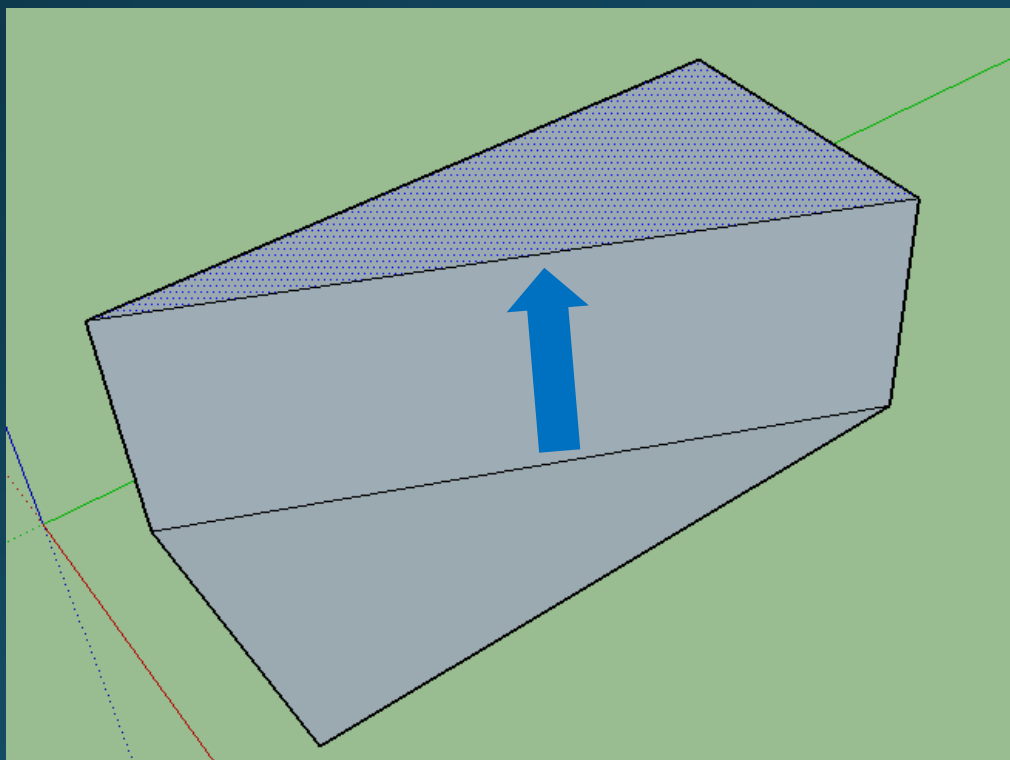
End

Hint:點一下左鍵開始，再點一次結束，不須長按

SketchUp基本操作

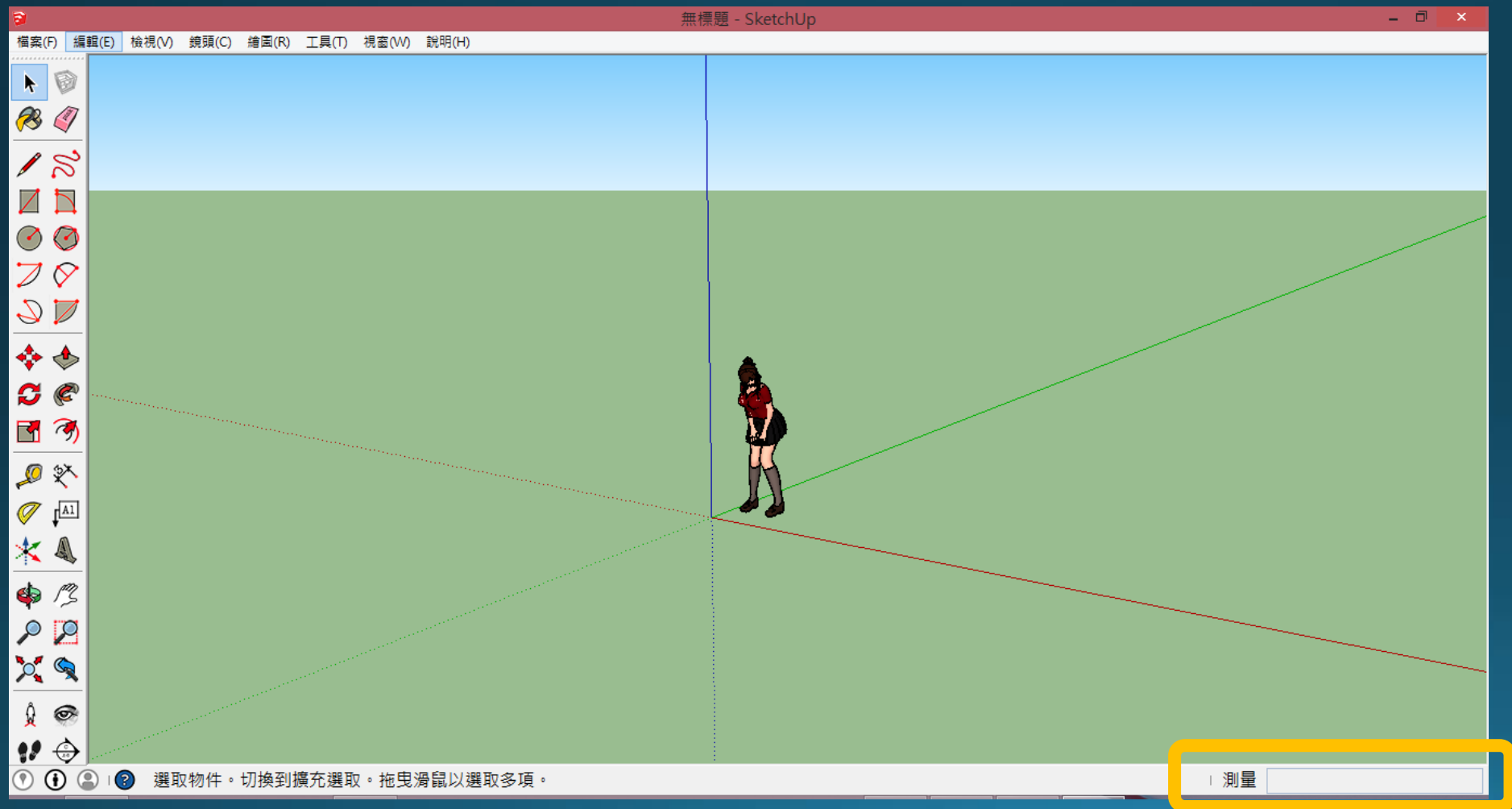
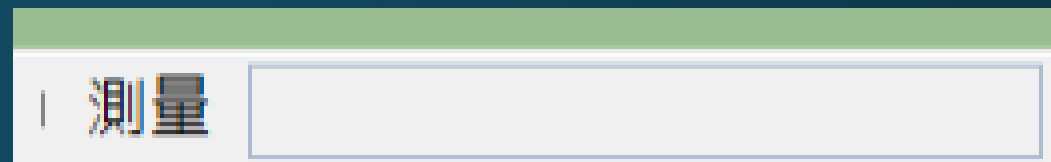


推/拉

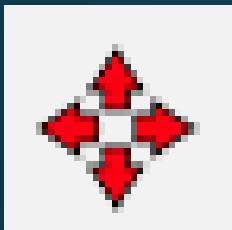


Hint:點一下選推/拉的平面 > 移動 > 點一下左鍵

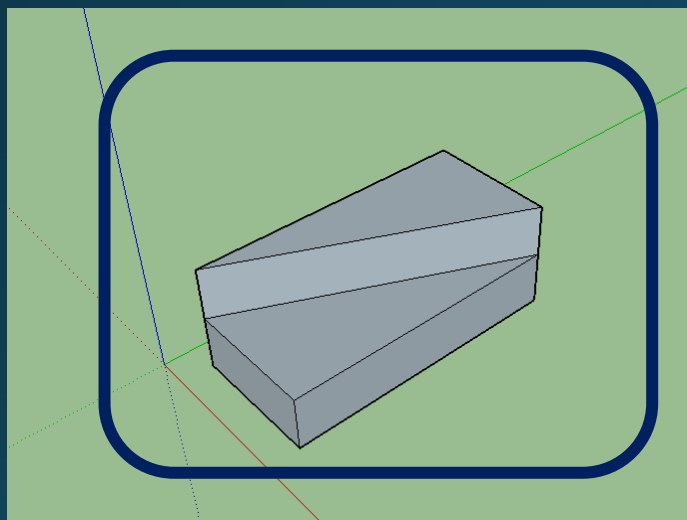
SketchUp基本操作



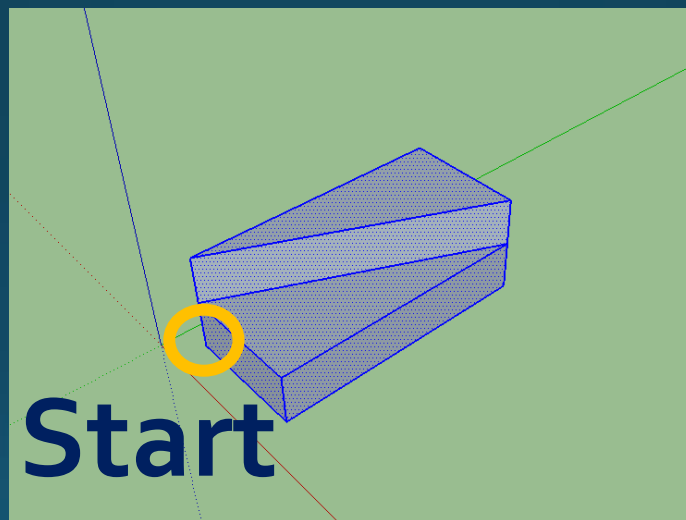
SketchUp基本操作



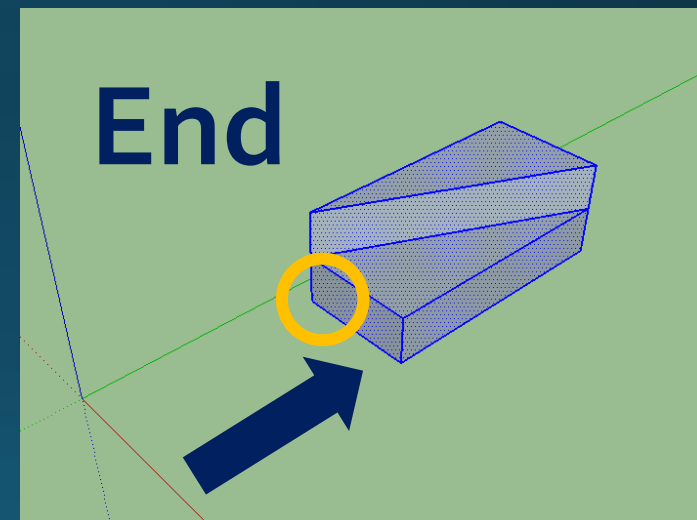
移動



選取物件

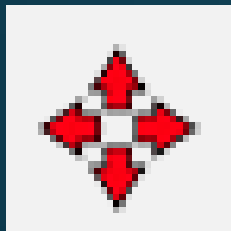


隨意點選一個位置作為起點，點選另一個位置作為終點，物件會隨著路徑相對移動

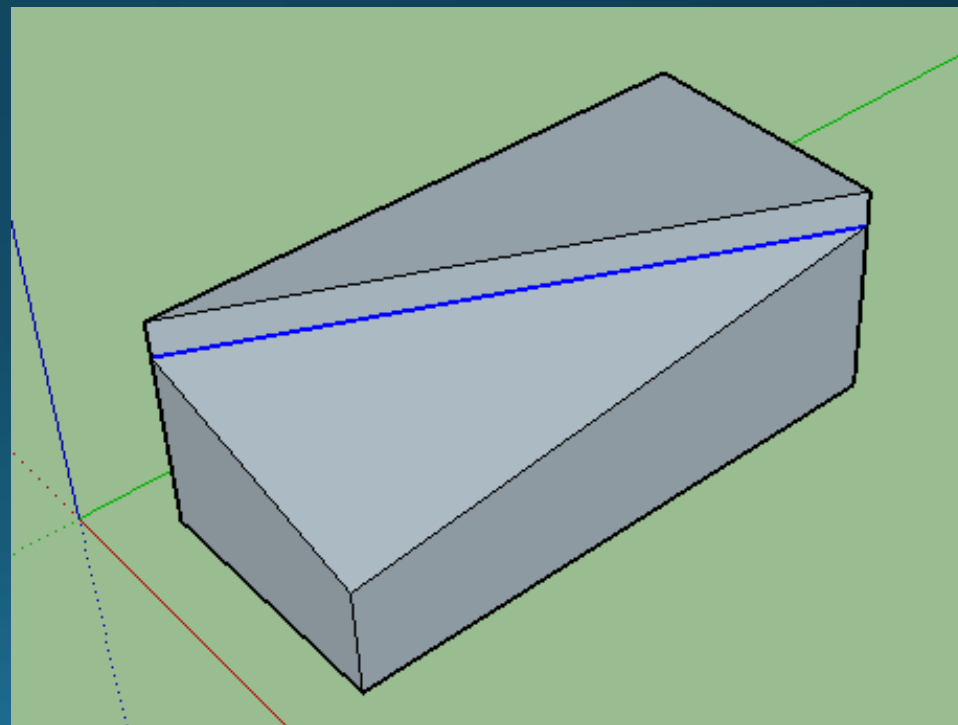
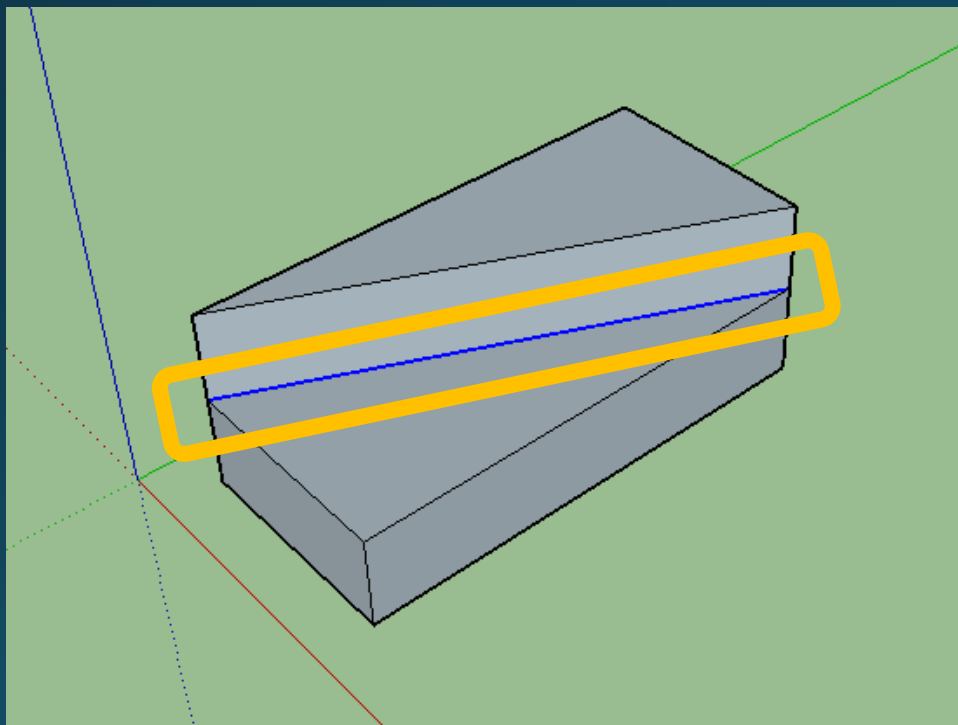


Hint: 先用  選取要移動的物件

SketchUp基本操作



移動

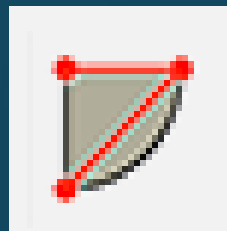


Hint:先用  選取部分線/面，可使變形

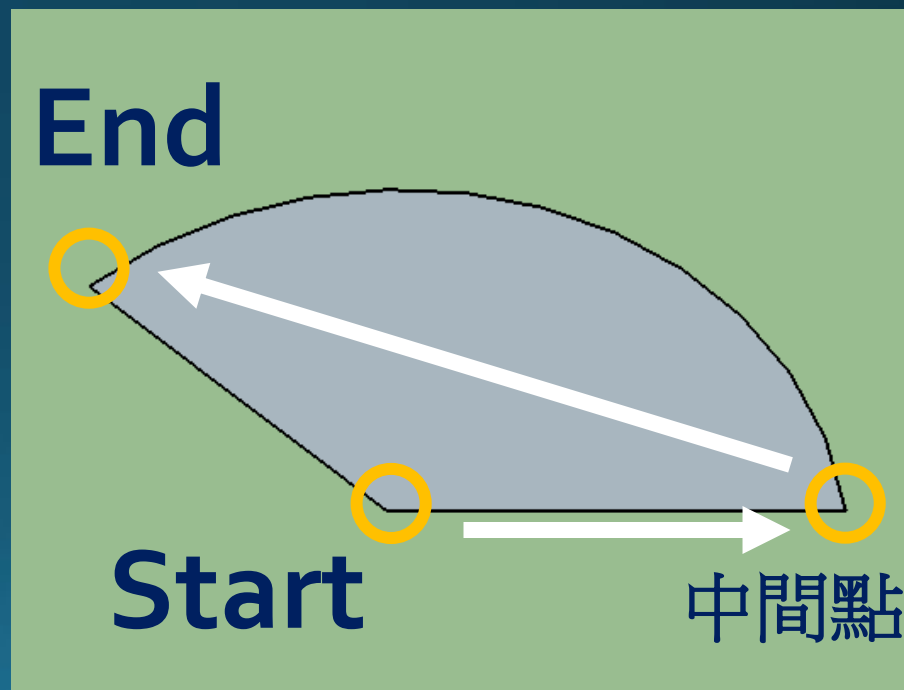
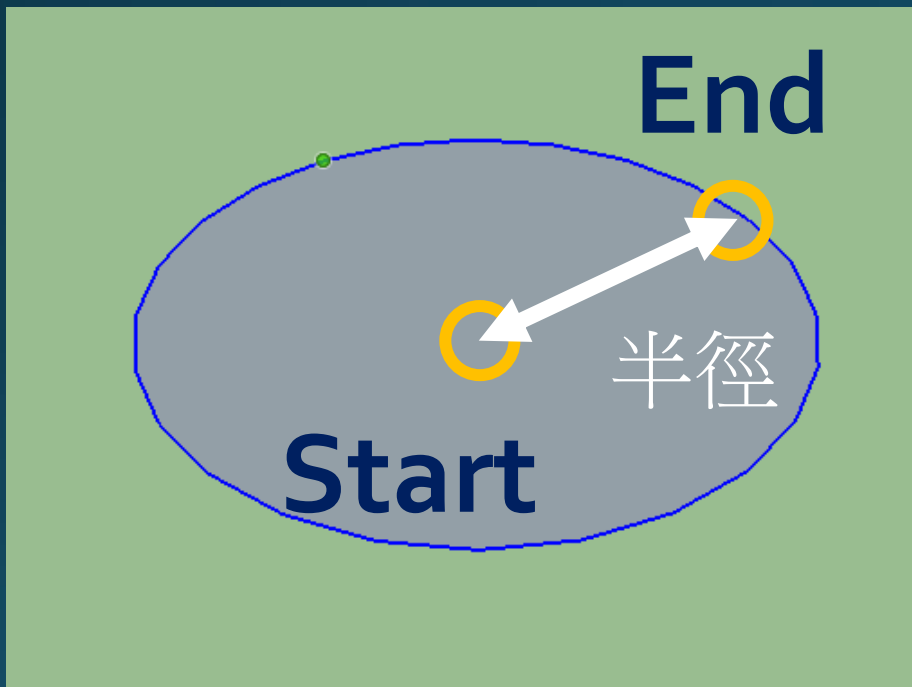
SketchUp基本操作



圓形

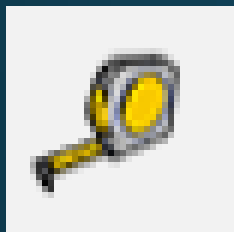


圓形圖

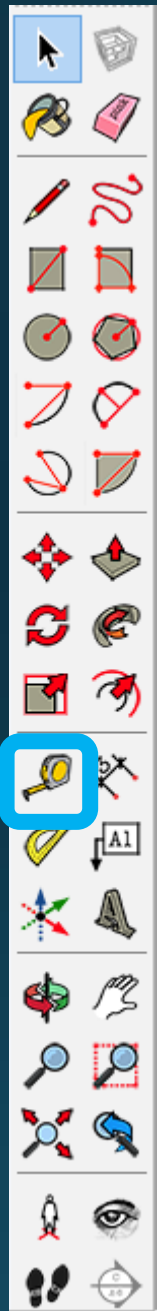
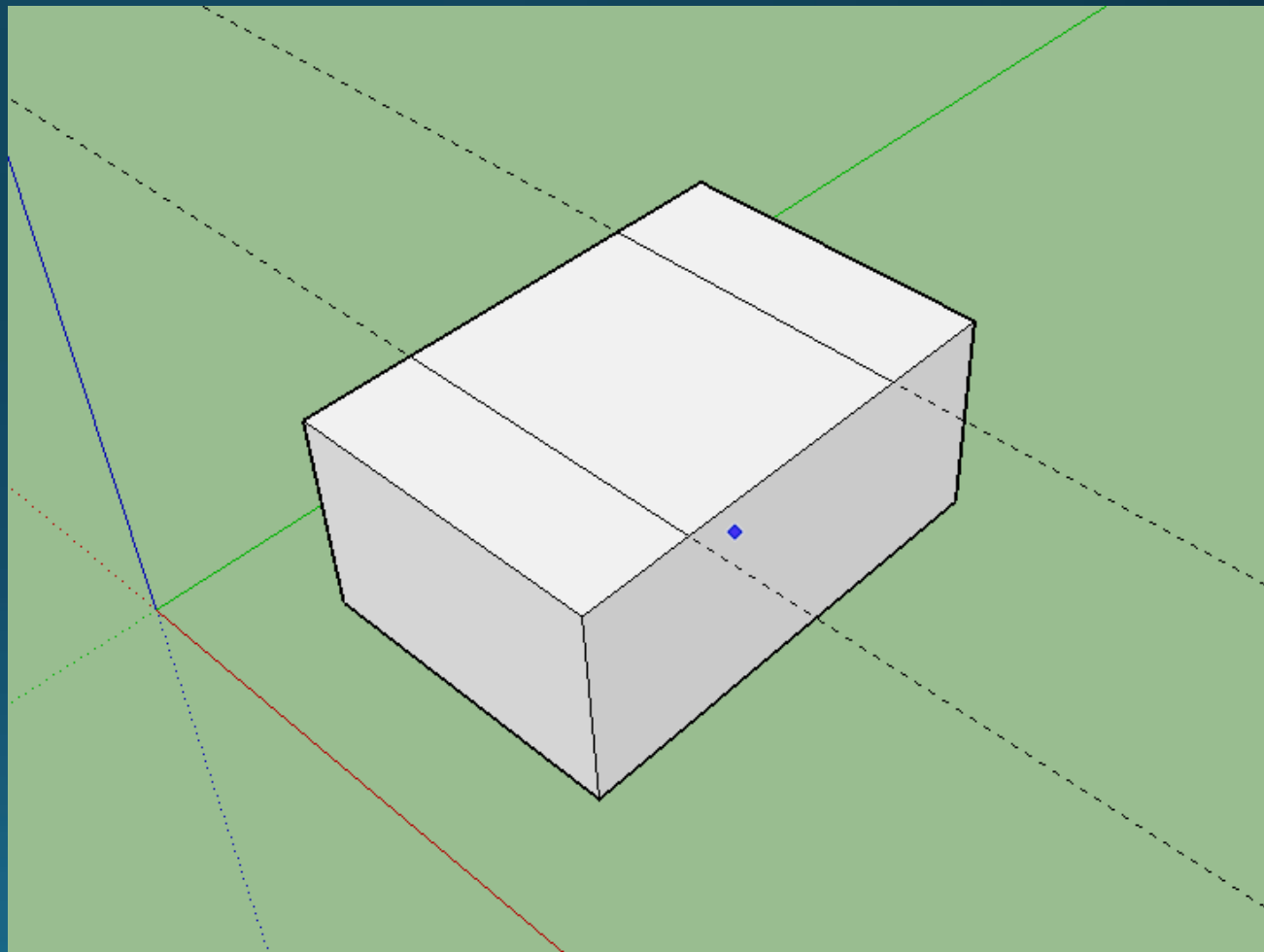


Hint:點左鍵開始，點選中間點(決定半徑)，點左鍵結束

SketchUp基本操作



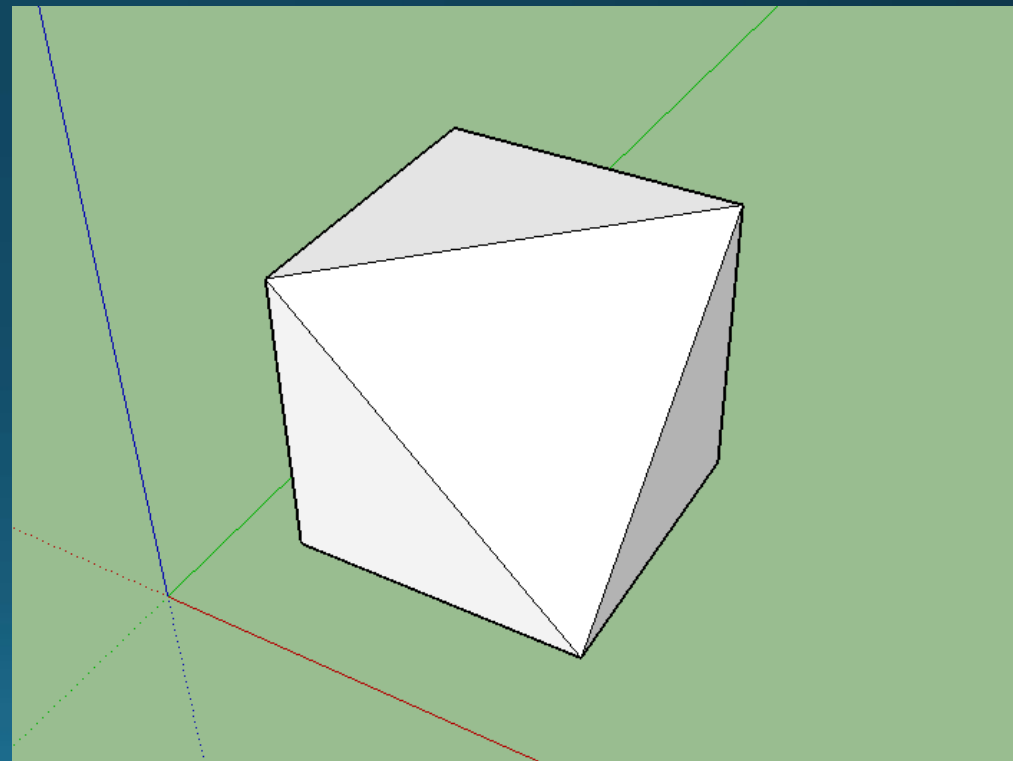
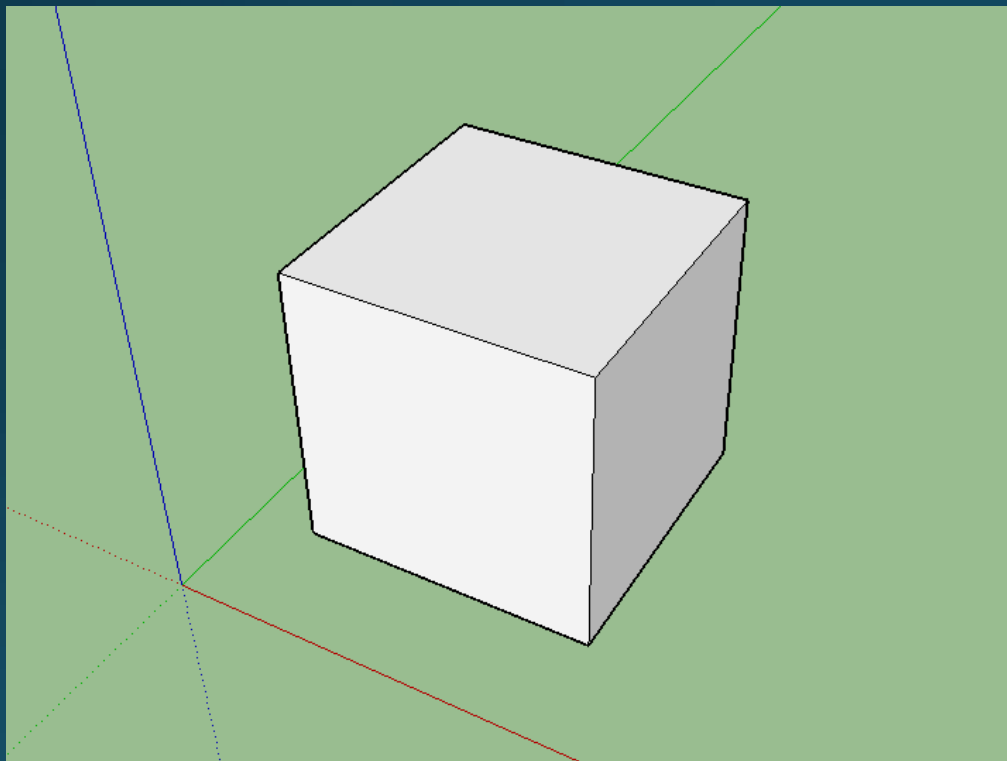
捲尺工具



小挑戰!!

小挑戰 小挑戰 小挑戰 小挑戰

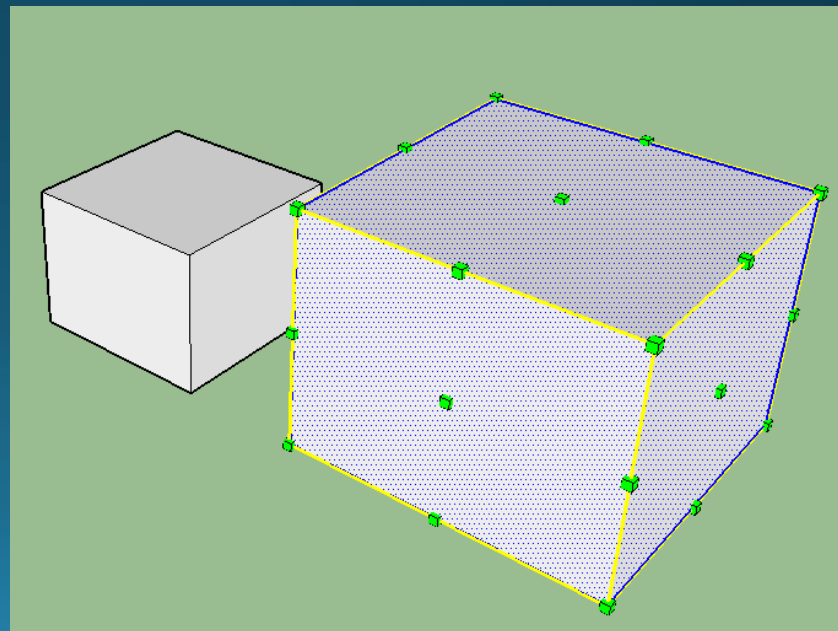
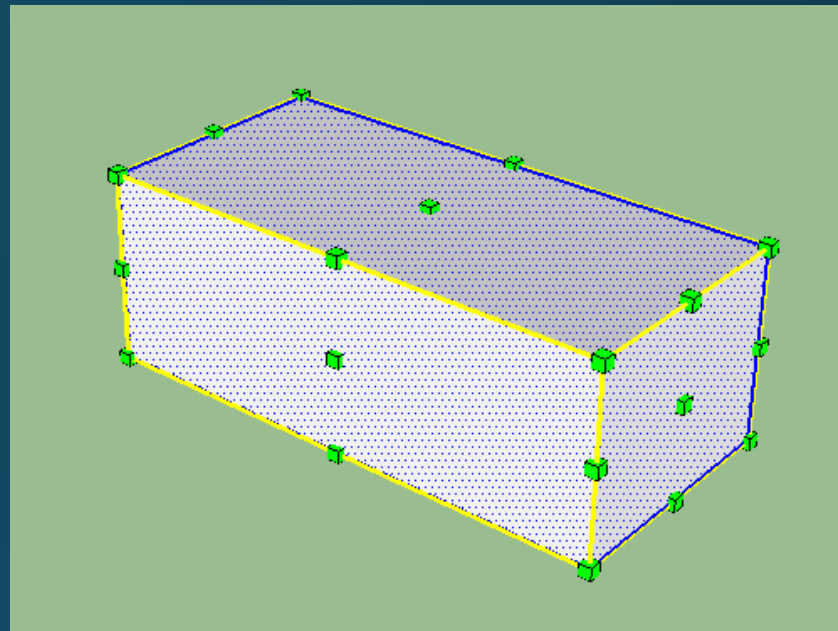
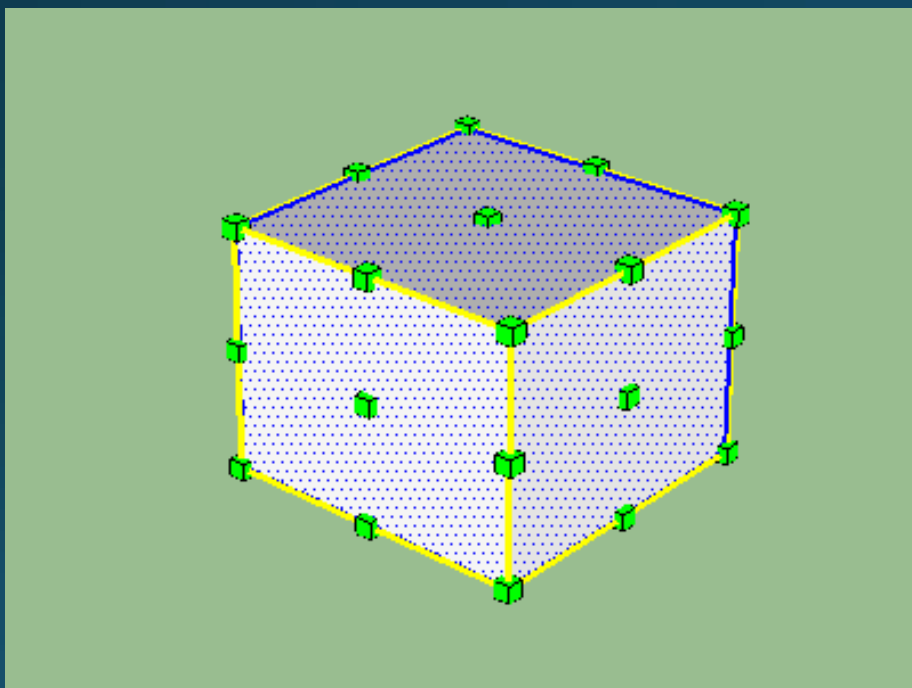
你要**HOW TO** 用這些工具，畫出一個被切角的正方形？



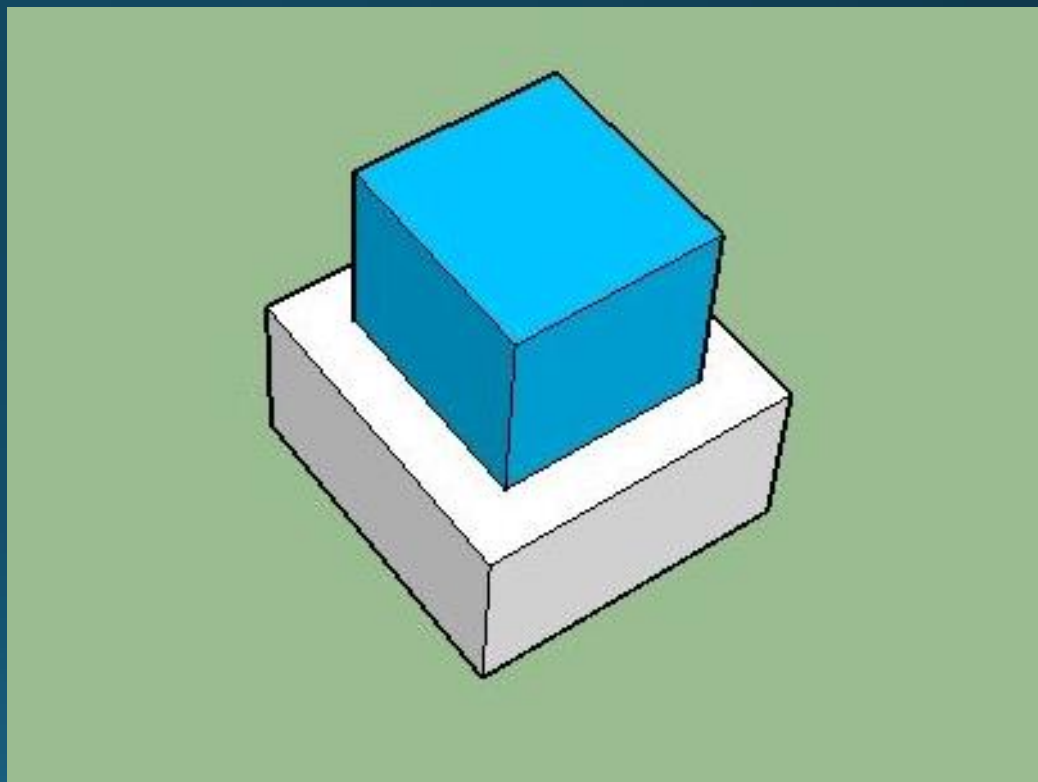
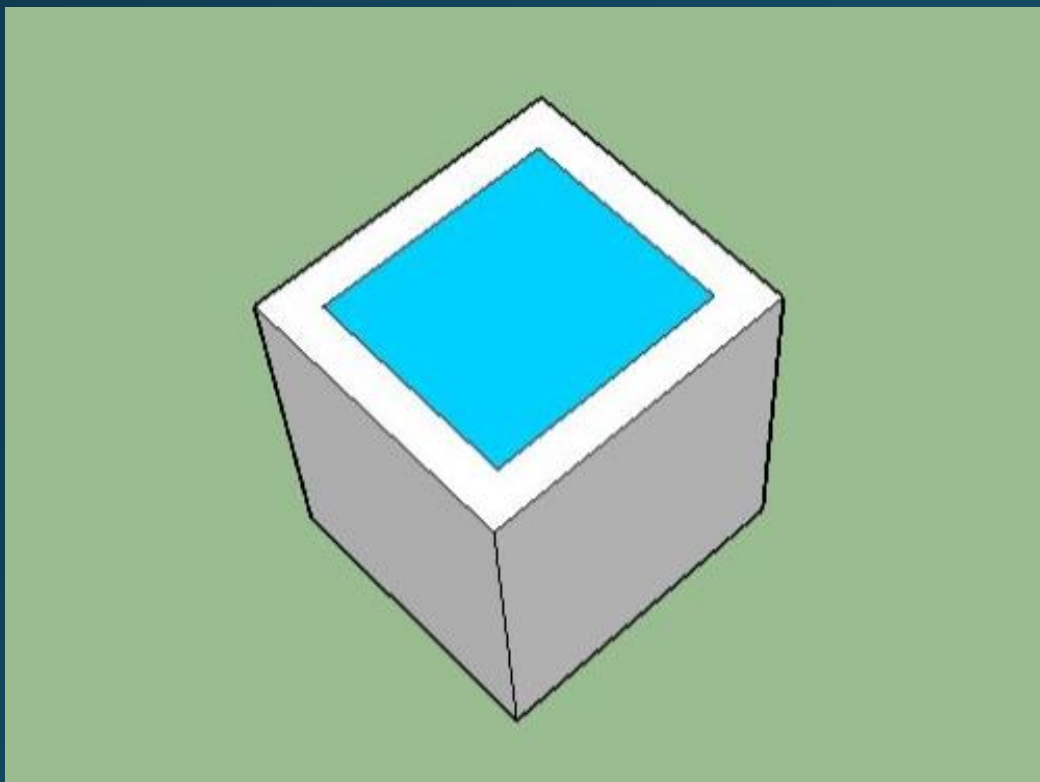
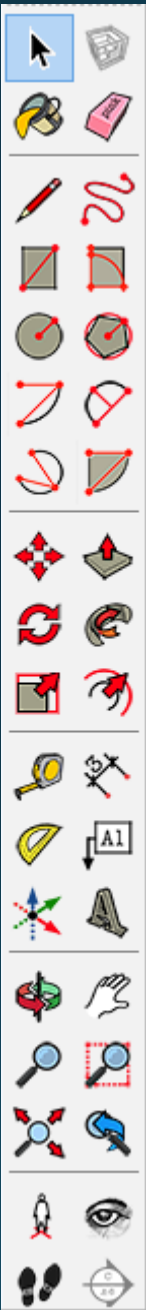
SketchUp基本操作



比例



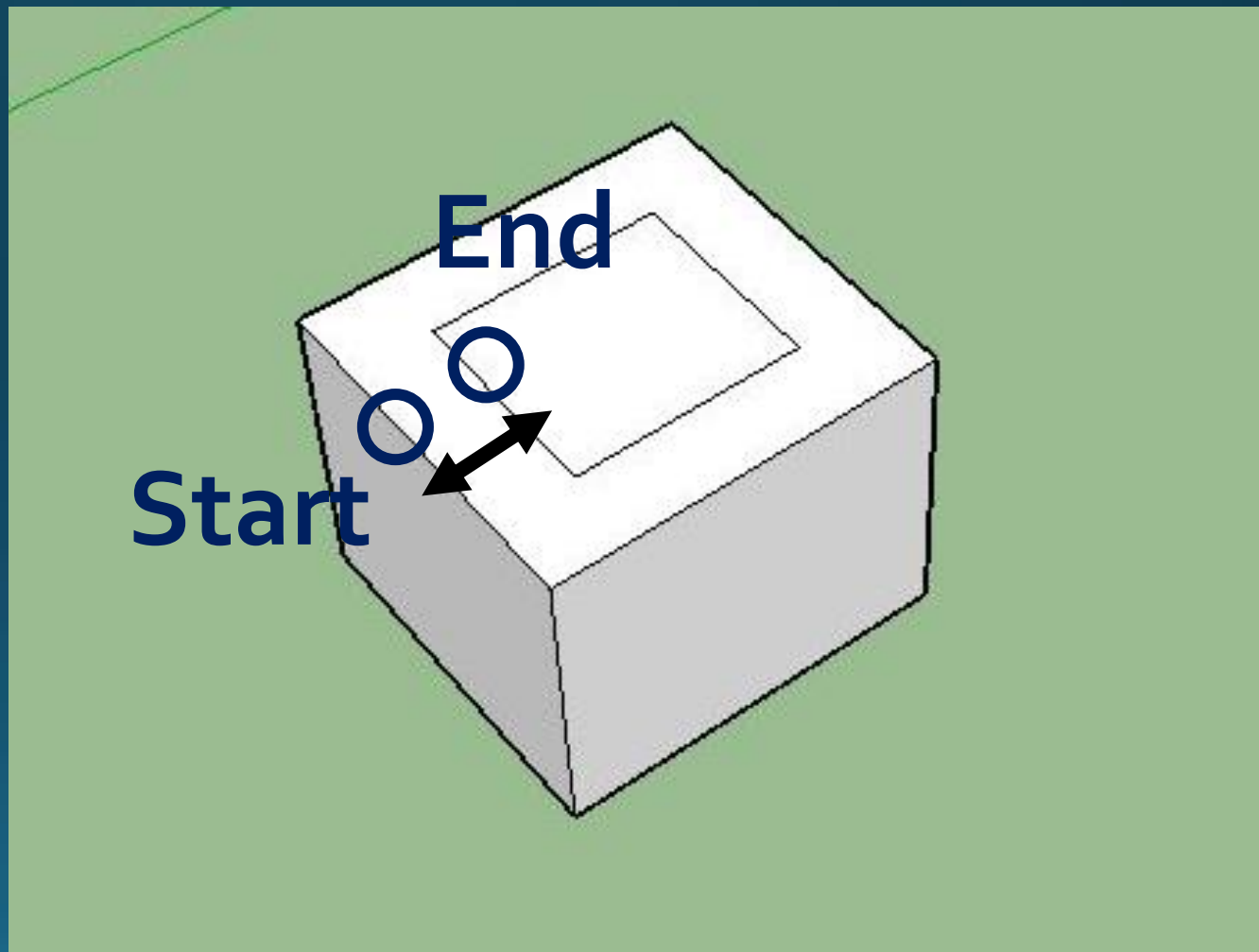
SketchUp基本操作



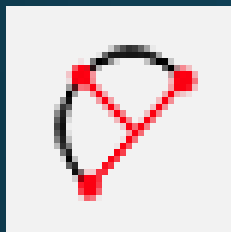
SketchUp基本操作



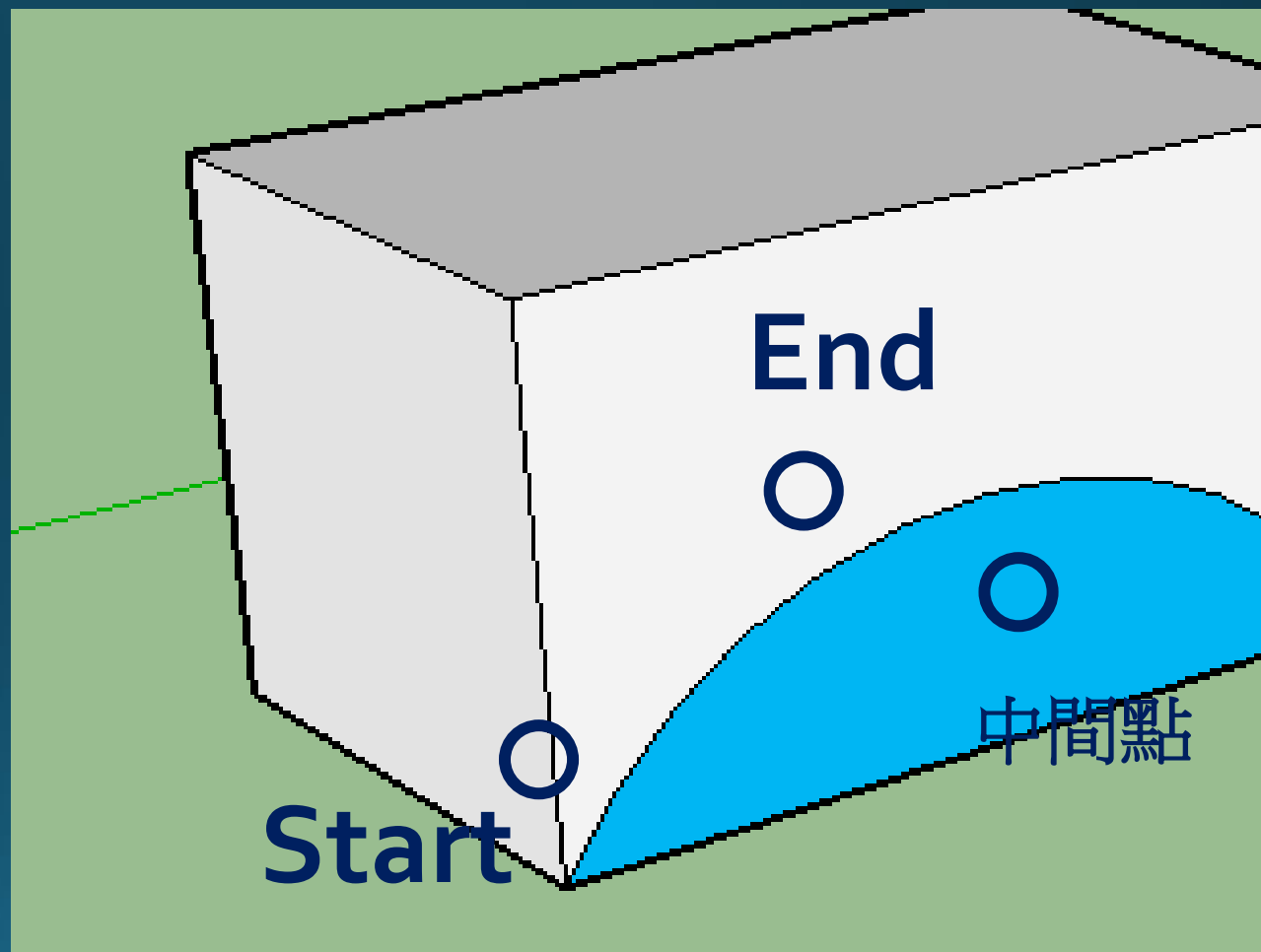
偏移



SketchUp基本操作



兩點圓弧

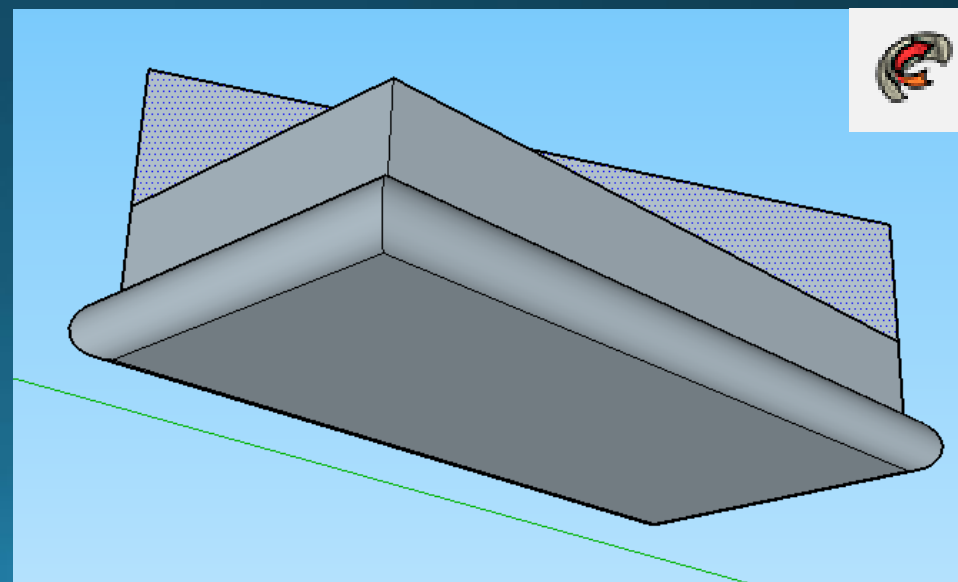
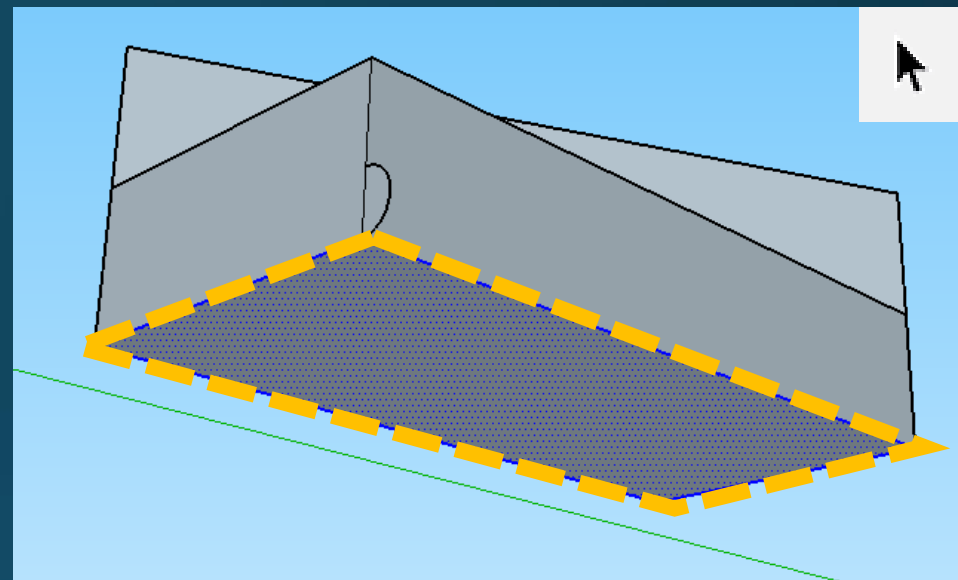
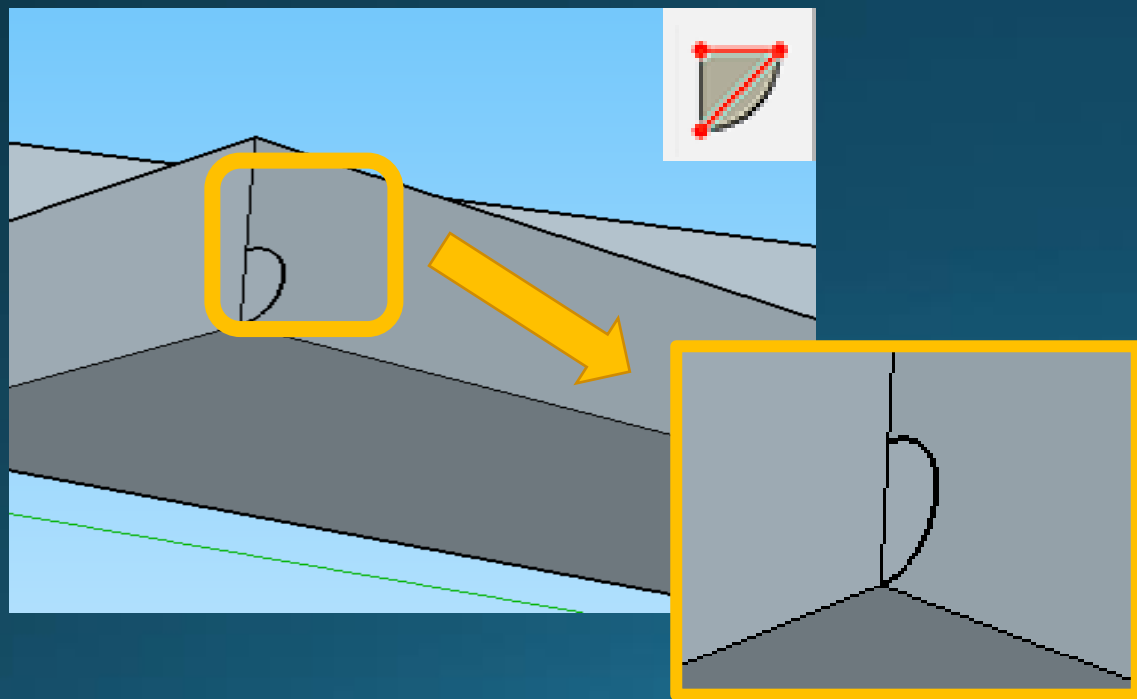


Hint:點左鍵開始，點選中間點(寬度)，點左鍵結束(高度)

SketchUp基本操作



路徑跟隨

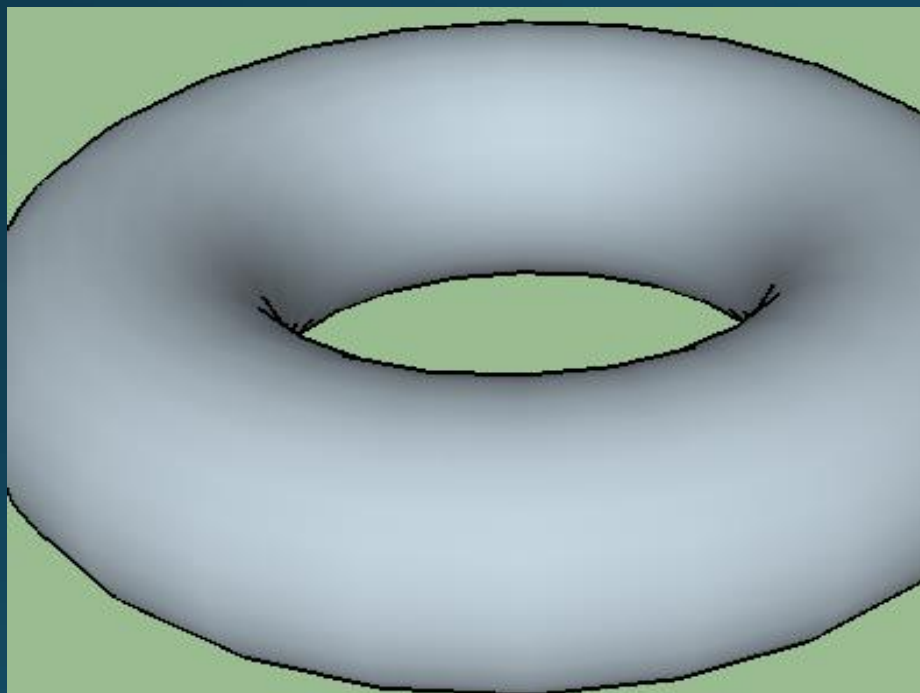




小挑戰 小挑戰 小挑戰 小挑戰

小挑戰!!

你要**HOW TO** 用這些工具，畫出一個？



Hint:

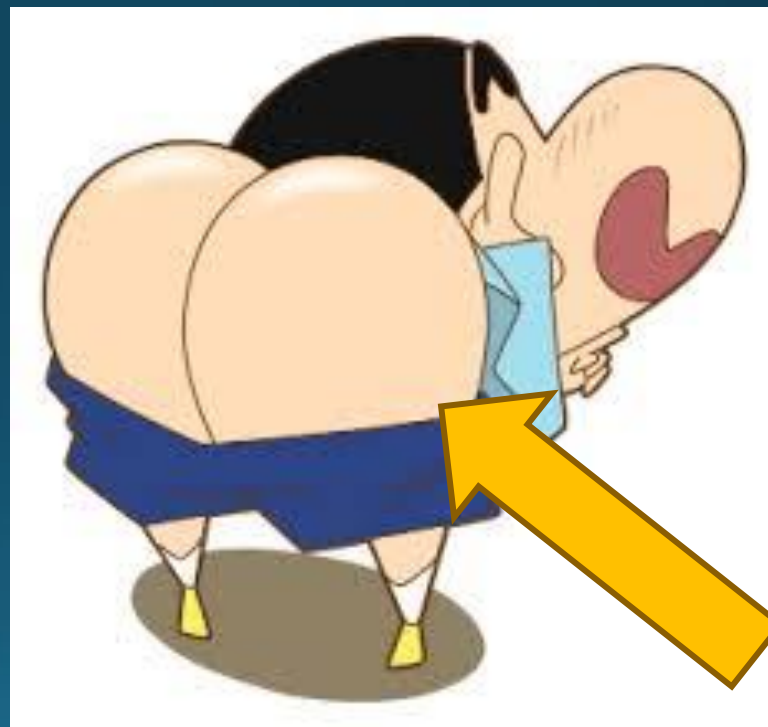
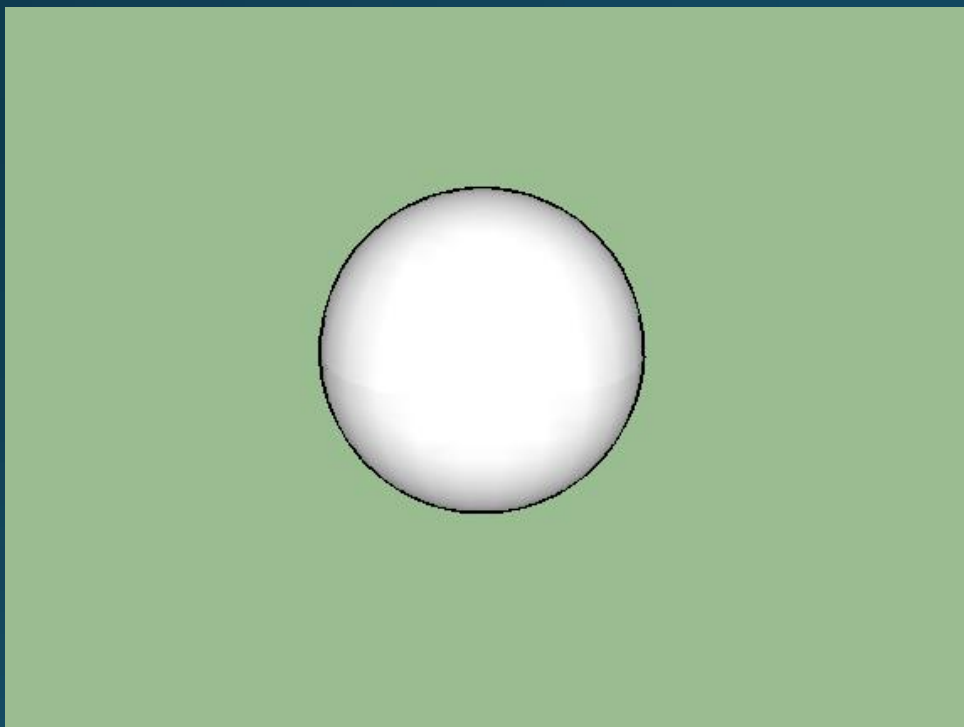




小挑戰 小挑戰 小挑戰 小挑戰

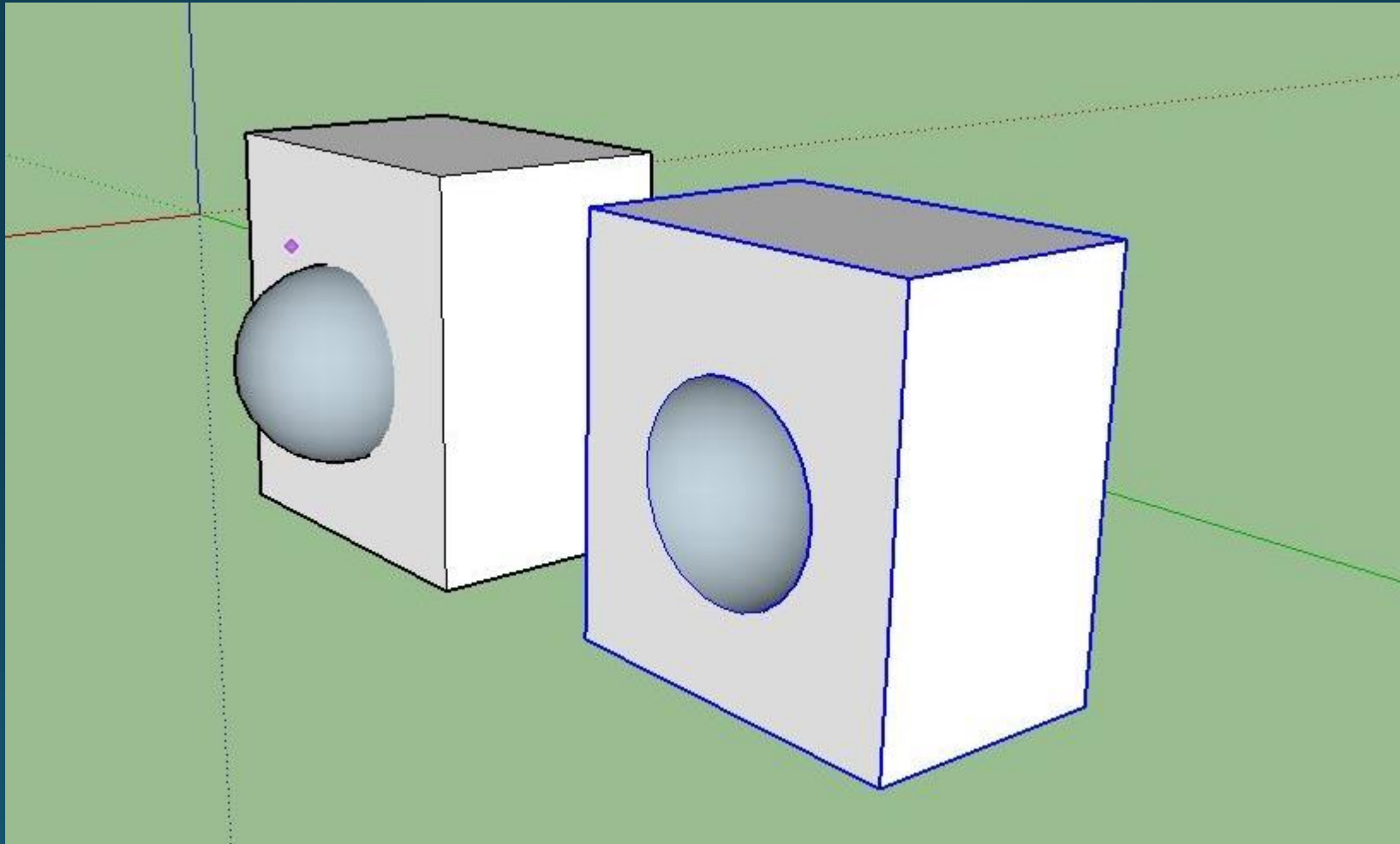
小挑戰!!

你要**HOW TO** 用這些工具，畫出一顆球？





SketchUp基本操作—實心工具



SketchUp基本操作—實心工具



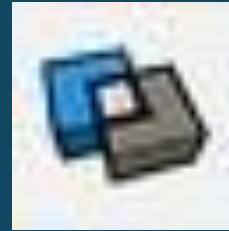
外層



交集



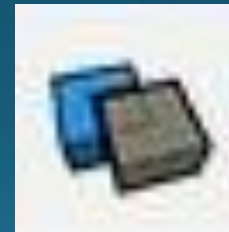
相減



分割



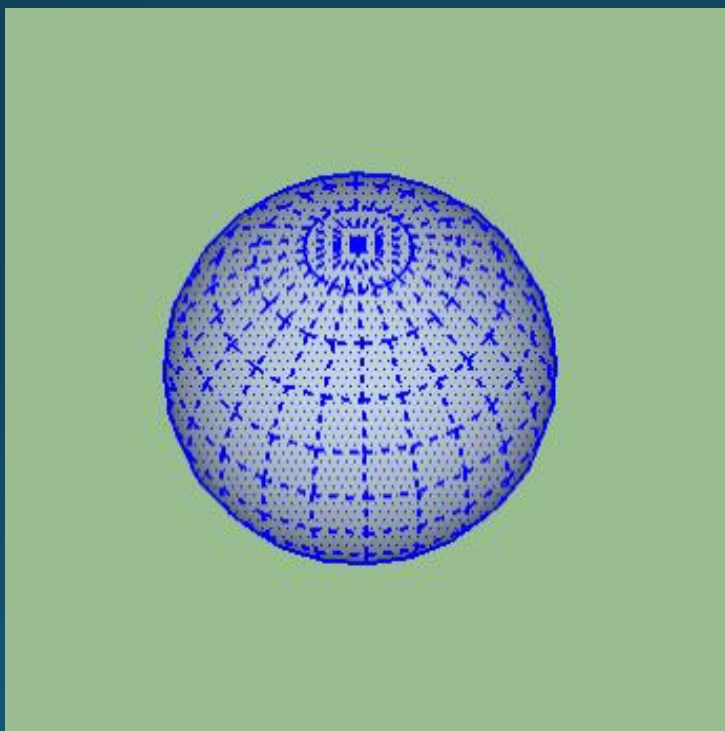
聯合



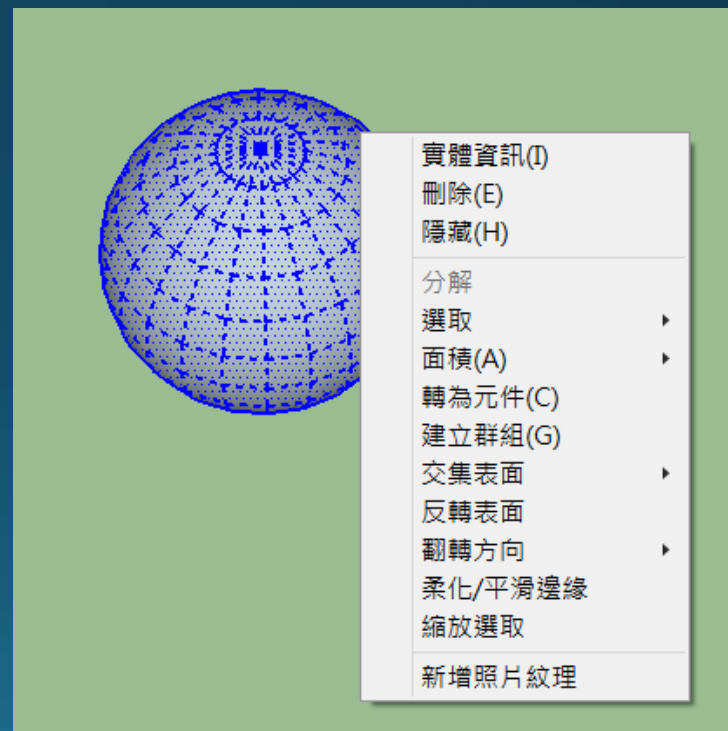
修剪

SketchUp基本操作—實心工具

1. 先將其轉為群組



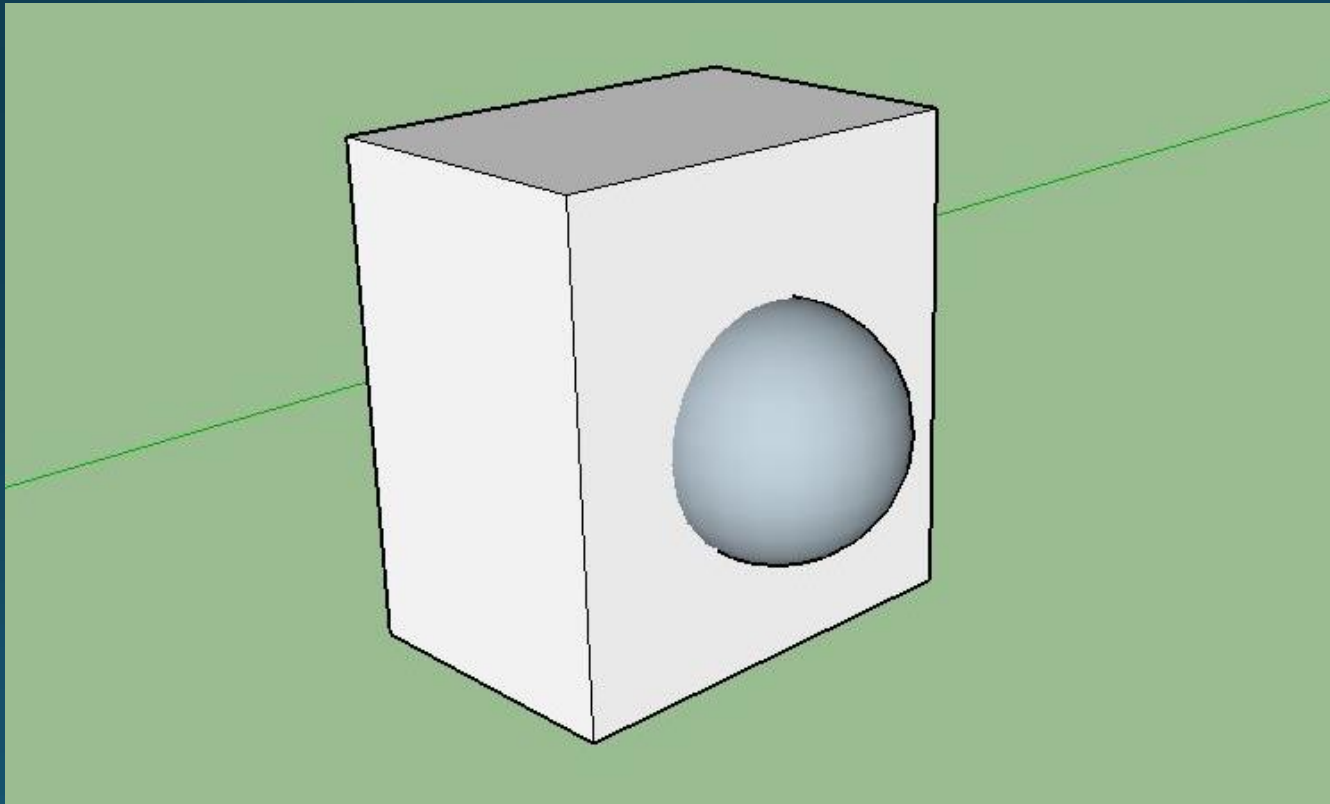
用  快點3下



右鍵 → 建立群組

SketchUp基本操作—實心工具

1.先將其轉為群組 --> 2.排列



SketchUp基本操作—實心工具

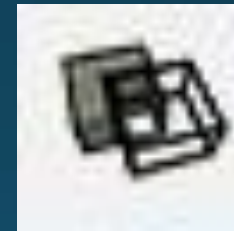
1.先將其轉為群組 → 2.排列 → 3.選取實心工具



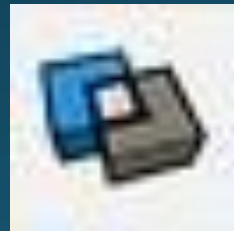
外層



交集



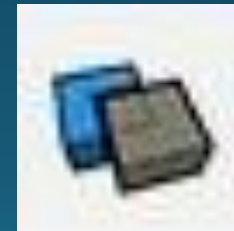
相減



分割



聯合

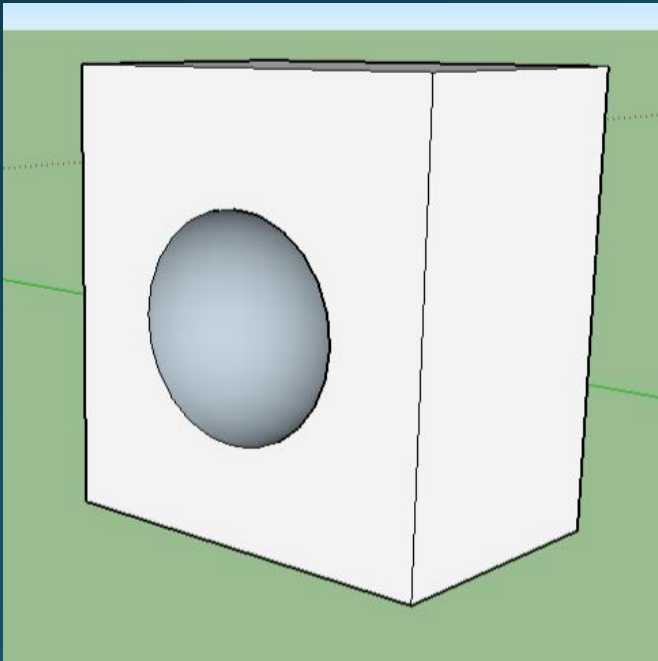


修剪

SketchUp基本操作—實心工具

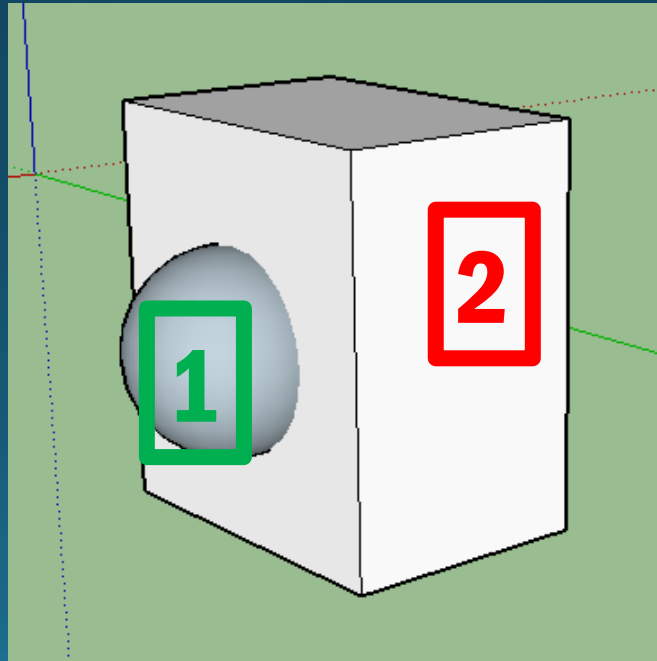


相減

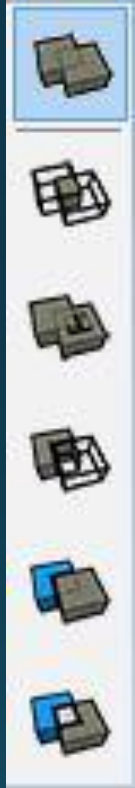


相減

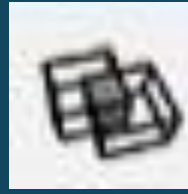
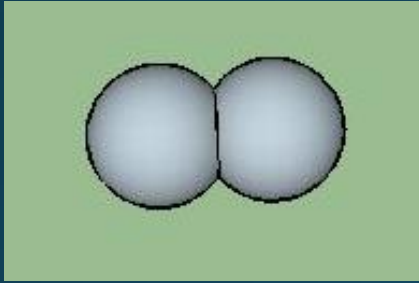
從第二個實體減去第一個實體，
並在模型中只保留該結果。



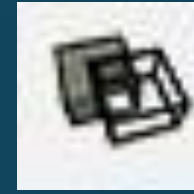
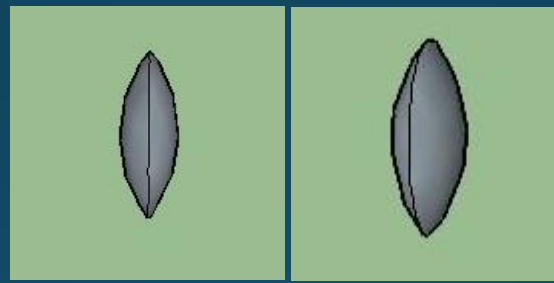
SketchUp基本操作—實心工具



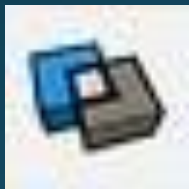
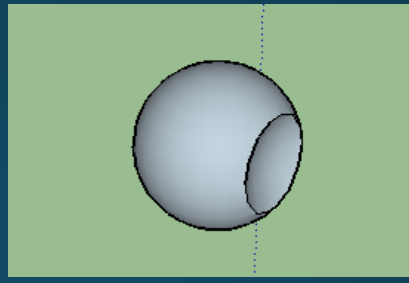
外層



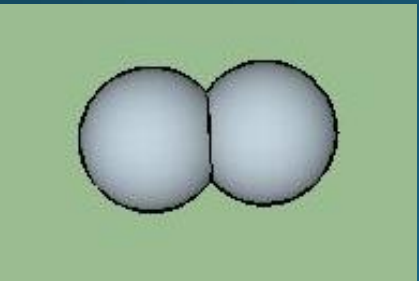
交集



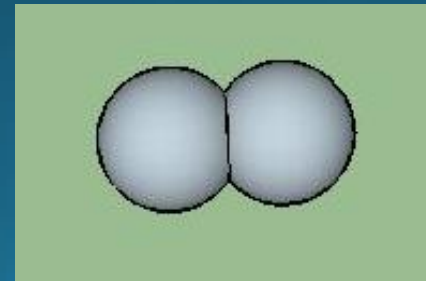
相減



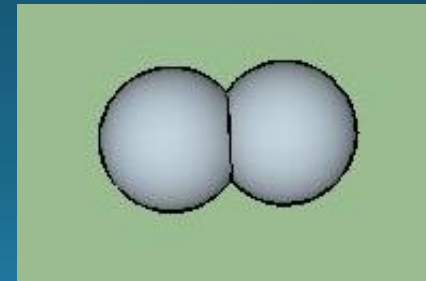
分割



聯合



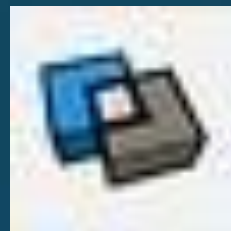
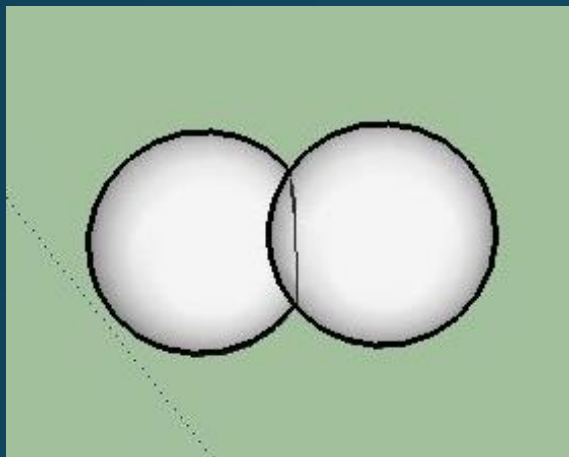
修剪



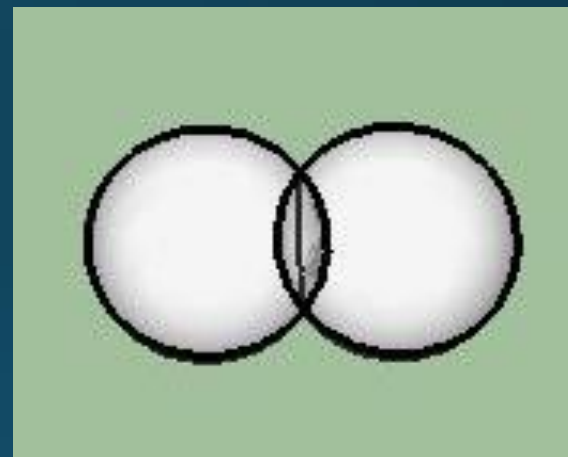
SketchUp基本操作—實心工具



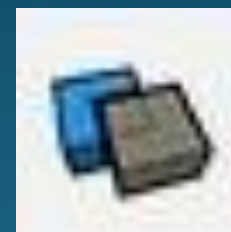
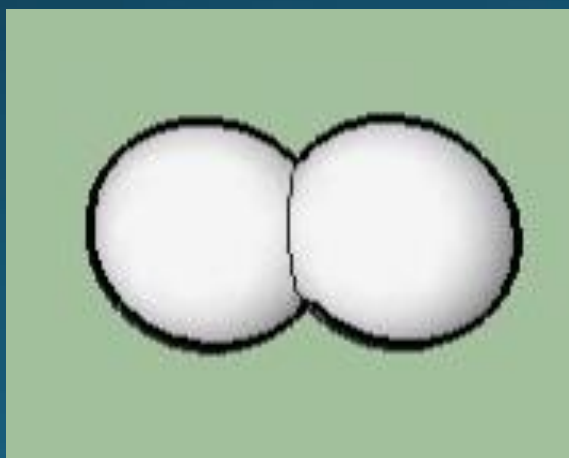
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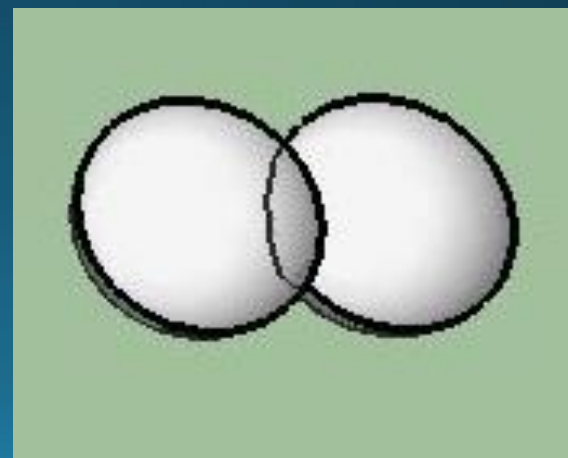
分割



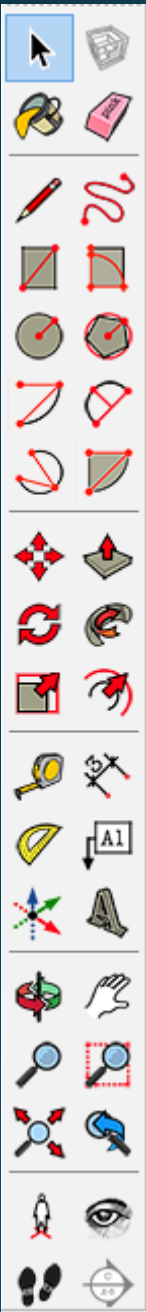
聯合



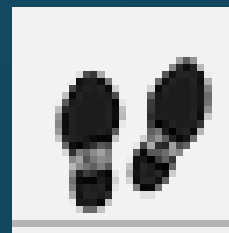
修剪



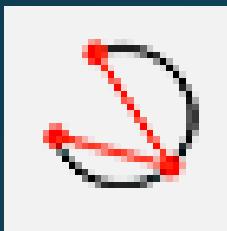
SketchUp基本操作



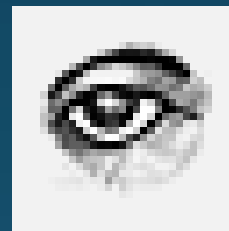
顏料桶



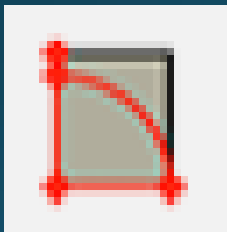
行走



三點圓弧



環顧



選轉矩形

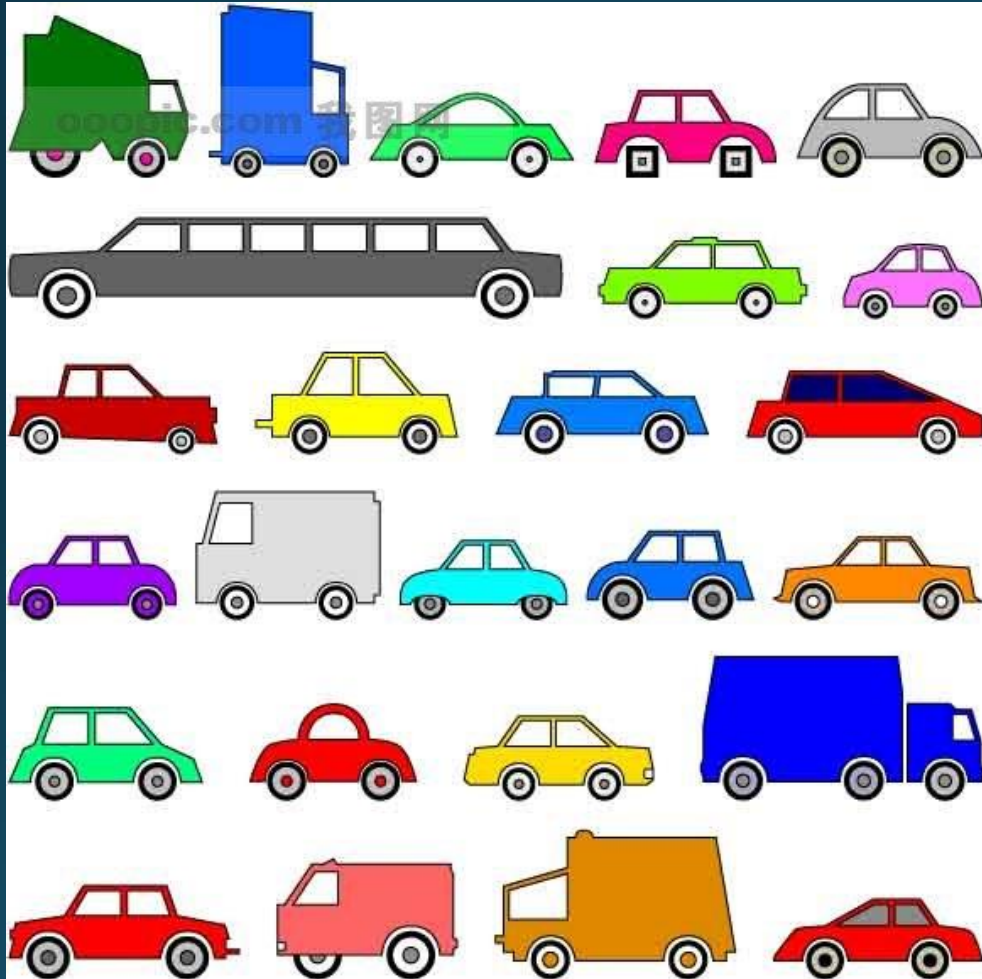


剖面平面

It's Time for... *Little Project!!*



Little Project



Little Project

