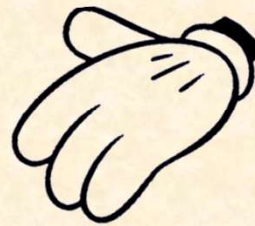


發現

看不見

的



Seeing the Invisible Hand

Game Rules: (規則說明)

- There are 3-5 rounds (共進行3-5個回合)
- Each group start with (每組的基本籌碼為) **150 Ecoins**
- You are awarded based on **total Ecoins added at the end** (遊戲結束後·以手上增加的籌碼總量計分)
- In each round, each group will draw a card; **please make sure other groups do not see it.**
(每組在每回合都會抽取一張撲克牌·請確保別組無法看到這張牌)



Note that Luck is involved here!
(請注意：本活動有一定的機運成分存在)

Game Rules: (規則說明)

➤ Num on the card is transferred to Ecoins

(撲克牌牌面【點數】及其所代表【金額】的對照表)

➤ 點數(card #)*10 = 金額 (Ecoins)

牌面點數	A	2	3	4	5	6	7	8	9	10	J	Q	K	card
金額	10	20	30	40	50	60	70	80	90	100	110	120	130	Ecoins

Now we shall introduce...

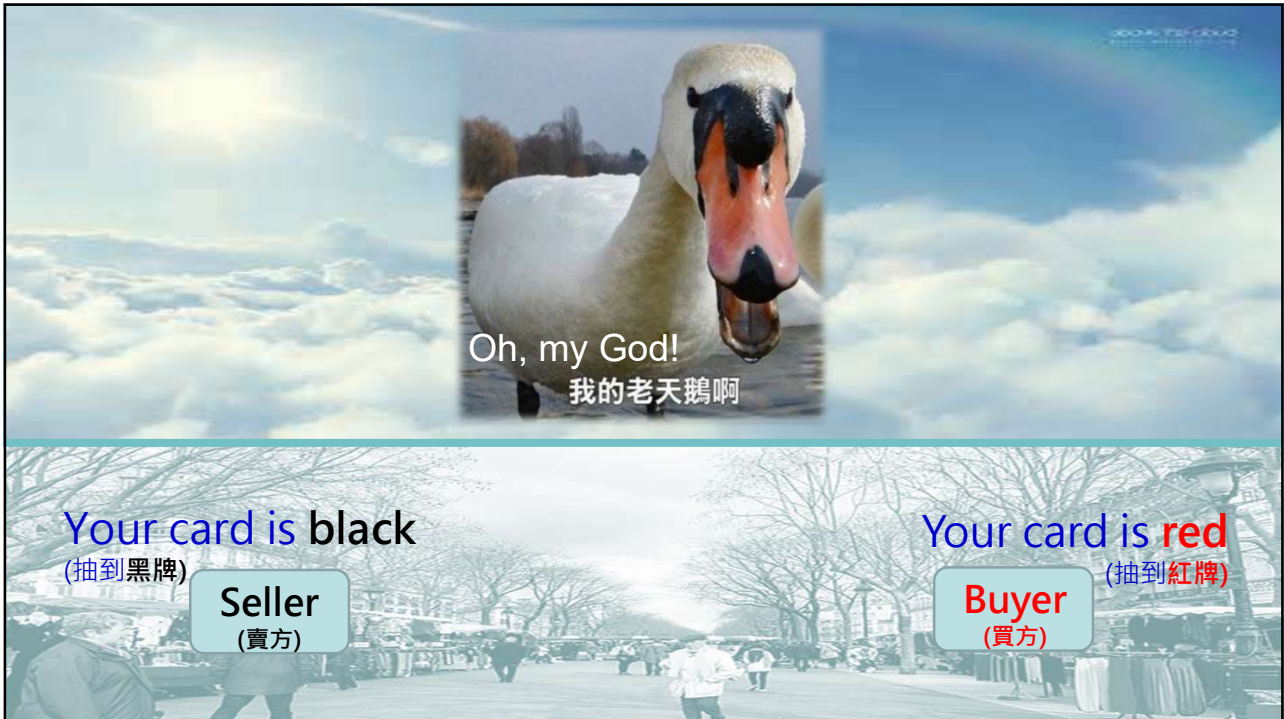
(接下來要特別介紹...)

Your card is black
(抽到黑牌)

Seller
(賣方)

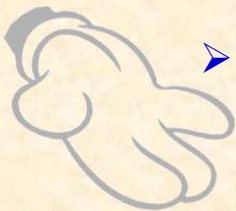
Your card is red
(抽到紅牌)

Buyer
(買方)



Game Rules: (規則說明)

- Seller if card is black (抽到黑牌是賣方)
- Pays \$\$ amount on black card to buy 1 [Product Card] from:
(要購入 1 張【商品卡】，可以持手上黑牌以牌面金額找)
- E.g. (例如) ♣5 = 50 Ecoins
- Sells [Product Card] to buyer
(可以將【商品卡】賣給買方)



- **Seller Profit** (賣方利潤) =
Price (成交價格) - **Cost** (進貨成本)
- **Higher Price** (成交價格愈高)
→ **Higher Profit** (賣方利潤愈多)
- **Price** (成交價格) < **Cost** (進貨成本)
→ **Sell at a loss** (賣方虧本)
- **No Trade** (如果沒有交易)
→ **0 Profit** (利潤為零)



Oh, my God!
我的老天鵝啊



Game Rules: (規則說明)

- **Buyer** if card is **Red** (抽到紅牌是買方)
- **Buy** (at most 1) [**Product Card**] from seller
(可以向賣方買【商品卡】(每人限購 1 張))
- Earns \$\$ amount on red card if sells [**Product Card**] to:
(可以持手上紅牌以牌面金額將【商品卡】賣給:
- E.g. (例如) **♦J = 110 Ecoins**





Oh, my God!
我的老天鵝啊

Oh, my God!
我的老天鵝啊

➤ **Seller Profit** (賣方利潤) =
Price (成交價格) - **Cost** (進貨成本)

➤ **Higher Price** (成交價格愈高)
→ **Higher Profit** (賣方利潤愈多)

➤ **Price** (成交價格) < **Cost** (進貨成本)
→ **Sell at a loss** (賣方虧本)

➤ **No Trade** (如果沒有交易)
→ **0 Profit** (利潤為零)

➤ **Buyer Gain** (買方好處) =
Value (商品價值) - **Price** (成交價格)

➤ **Lower Price** (成交價格愈低)
→ **Higher Gain** (買方好處愈多)

➤ **Price** (成交價格) > **Value** (商品價值)
→ **Buy at a loss** (買方好處為負)

➤ **No Trade** (如果沒有交易)
→ **0 Gain** (好處為零)

Product (商品卡) 50 Ecoins

Product (商品卡) 110 Ecoins

Product (商品卡)

Price (成交價格) in Ecoins

Seller (賣方) ♣5

Buyer (買方) ♦J

Game Rules: (規則說明)

➤ E.g. If Jack the ♦J traded with Fred the ♣5 at price \$78 (舉例來說，如果持有♦J的小明與持有♣5的小華以78元成交)

➤ Gains of Jack are (小明得到的好處為)

$$110 - 78 = 32$$

➤ Profits of Fred are (小華的利潤則是)

$$78 - 50 = 28$$



Game Rules: (規則說明)

➤ When a buyer and a seller group reach agreement, **bring your cards to OMG** to complete the trade

(買賣一旦成交·請雙方一起帶著撲克牌找老天鵝完成交易)

1. Seller buys [Product Card] from **OMG** at card \$\$

(賣方向老天鵝購買【商品卡】·支付賣方卡片金額)

2. Buyer buys [Product Card] from seller and write the **price** it. (買方向賣方購買【商品卡】並在其上寫下「成交價格」)

3. **OMG** buys [Product Card] from buyer at card \$\$

(老天鵝向買方購回【商品卡】·支付買方卡片金額)

Game Rules: (規則說明)

1. Trade is **voluntary**, (買賣均須在自願的前提下進行·不能強迫)

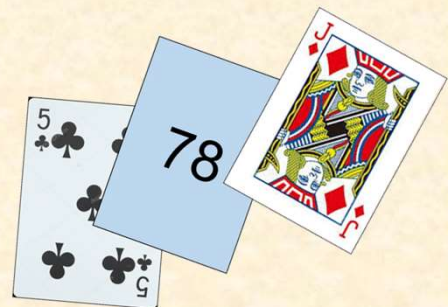
2. Trade is **irrevocable** if reported, (申報交易後不能反悔·)

3. **Cannot show your card to others.** (不可亮牌給別人看·)

Quiz: (小測驗)

➤ What if Jack has ♥5 and Fred has ♠K? (若小明抽到♥5·小華抽到♠K?)

➤ What if King has ♣9 and John has ♠2? (若老王抽到♣9·小強抽到♠2?)





Each group send one to draw a card
(請每組派一位來找主持人抽一張撲克牌)

Sellers buy [Product Card] from OMG
(賣方請跟老天鵝進貨)

Fill out the top of Q1 (填寫學習單第 1 題的上半部)

Seeing the Invisible Hand (發現看不見的手)

1. Was the card you received red or black? What was the card number and dollar amount? Did you make a trade? Earn or lose money? What was your net profit? 你抽到紅牌還是黑牌? 牌面數字或金額是多少? 買賣有成交嗎? 賺了還是虧了? 淨得多少好處或利潤呢?

Round (回合)	1	2	3	4
Color (牌面顏色)	R(紅)、B(黑)	R(紅)、B(黑)	R(紅)、B(黑)	R(紅)、B(黑)
Num. (牌面數字)	J			
Dollar (牌面金額)	110			

To complete the trade, pairs who reach agreements can **bring their cards & \$\$** to **OMG**
 (成交雙方請帶著撲克牌和籌碼找...)

OMG
(老天鵝)

➤ Round 1: Free-form bargaining (3min) 第一回合: 自由交易

MobLab Pit Market Rules: (App版規則說明)

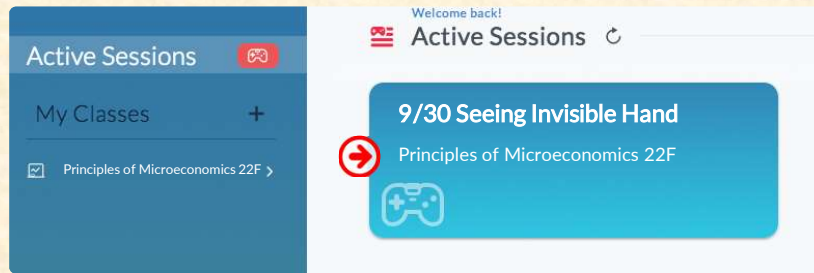
➤ If agreed, **one of you** should: (同意交易的雙方由**其中一方**負責)

1) Enter price agreed upon (輸入雙方合意價格)

2) **Choose** the other from list (從清單中**選取**交易對象)

➤ The other **accepts** offer to complete the trade
 (另外一方**接受**後交易便完成!!)

Enter the Activity



How to Play **如何進行的指示語**

Producers and consumers meet in the wholesale apple market. Producers, you profit by finding a buyer agreeing to pay more than your cost. Consumers, you profit by finding a producer agreeing to accept less than the value of the bushel.

Everyone, get out of your seat, find your market, and try to transact! If a producer and consumer agree upon a price, one of you initiates the trade using the app. The trade is not final until the other accepts in his app. Make sure to finalize any sale before time runs out.

Continue

直接跳過



Your Info (關於你的相關資訊)

You are
Producer

1

Your
Cost

\$10

Go to Market
←
Record (記載於學習單後)
and Start! (進入市場)

🎮 💬 🔄 | 👤 100 | 🕒 02:25 🏠

You are
Producer

1

Your
Cost

\$10

Go to Market

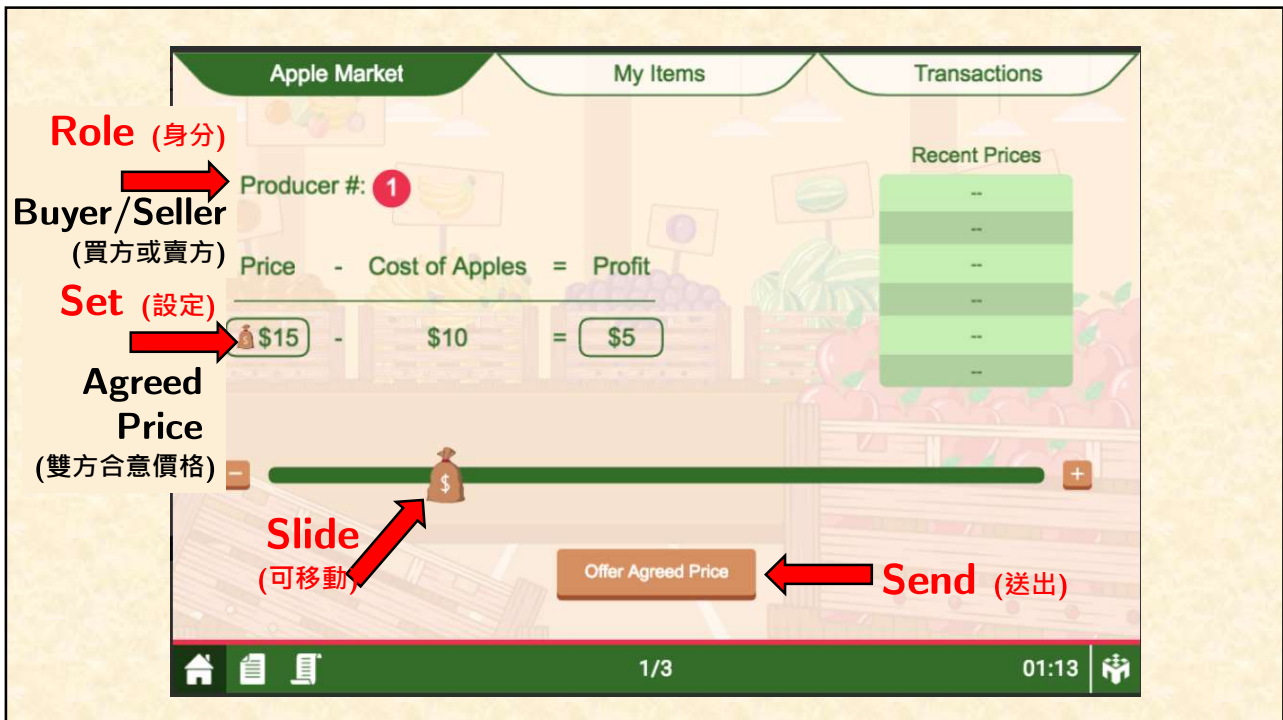
Fill Out Your Record Sheet Q1!

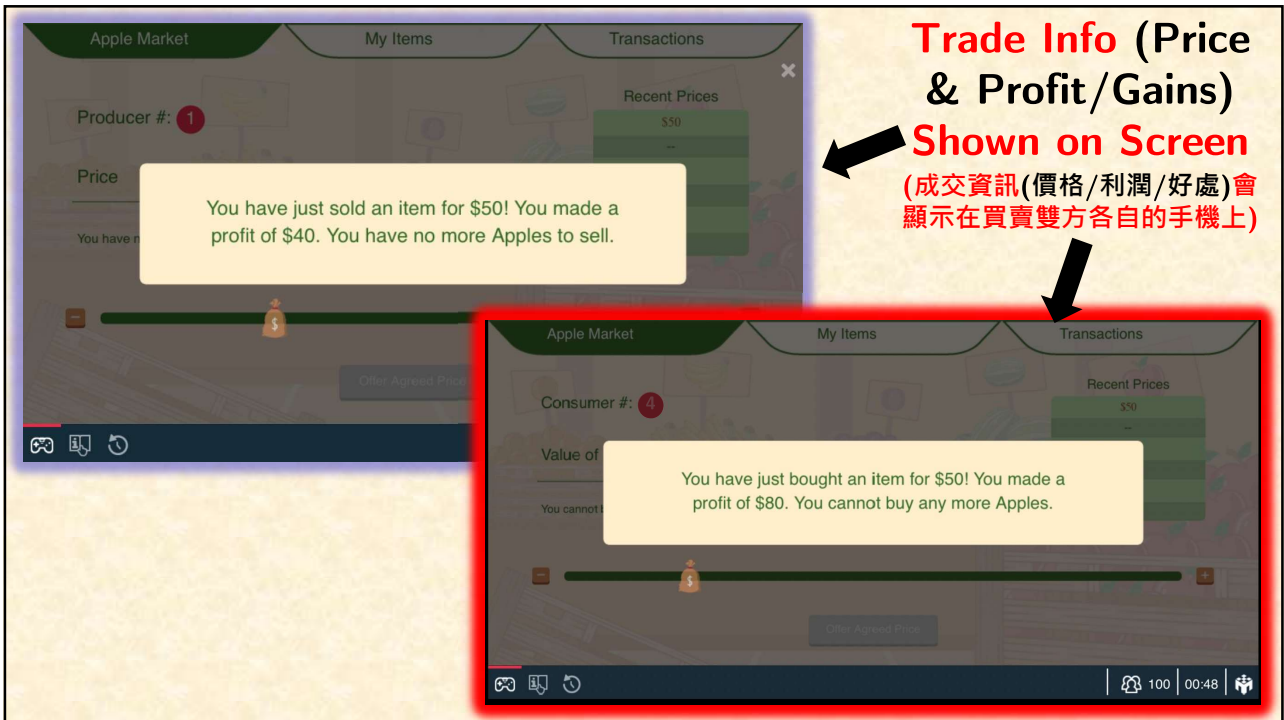
(填寫學習單第 1 題的上半部)

你看見了哪隻手?

1. 你扮演買方還是賣方？商品的價值或成本是多少？買賣有成交嗎？賺了還是虧了？淨得多少好處或利潤呢？

回合	1	2	3	4	5
扮演角色	買、 賣	買、賣	買、賣	買、賣	買、賣
價值/成本	10				





Apple Market
My Items
Transactions

My Transactions

Unit	Price	Cost	Payoff
1	\$126	\$10	\$116

Total:



Trade Info (Price & Profit/Gains)

Shown on Screen

(成交資訊(價格/利潤/好處)會顯示在買賣雙方各自的手機上)

Apple Market
My Items
Transactions

Total:

My Transactions

Unit	Value	Price	Payoff
1	\$140	\$64	\$76

Total: \$76



🎮
🗨️
🔄

Apple Market
My Items
Transactions

All Transactions

#	Price	Time
2	\$64	155.9s
1	\$126	105.4s



Market Info

(市場成交資訊)

🎮
🗨️
🔄

👤
100

🏠

You have just sold an item for \$50! You made a profit of \$40. You have no more Apples to sell.

Complete Record Sheet Q1
(完成學習單第 1 題的下半部)

你看見了哪隻手?

1. 你扮演買方還是賣方? 商品的價值或成本是多少? 買賣有成交嗎? 賺了還是虧了? 淨得多少好處或利潤呢?

回合	1	2	3	4	5
扮演角色	買、賣	買、賣	買、賣	買、賣	買、賣
價值/成本	10				
成交價格	50				
盈虧	賺、賠	賺、賠	賺、賠	賺、賠	賺、賠
好處/利潤	40				

Cross Out if No Trade
(如果沒有成交就打X)

Are You Ready?
(準備好了嗎?)



Fill Out Your Record Sheet Q1 for Round 1

(填寫學習單第 1 題第 1 回合的上半部)

你看見了哪隻手?

1. 你扮演買方還是賣方? 商品的價值或成本是多少? 買賣有成交嗎? 賺了還是虧了? 淨得多少好處或利潤呢?

回合	1	2	3	4	5
扮演角色	買、賣	買、賣	買、賣	買、賣	買、賣
價值/成本					

Round 1: Free Bargaining

(第 1 回合: 自由交易) (3 min)

Return your card if no trade; sellers get refund from OMG (請沒有成交的各組交回撲克牌、賣方請跟老天鵝退貨)

Fill out the bottom of Q1 (填寫學習單第 1 題的下半部)

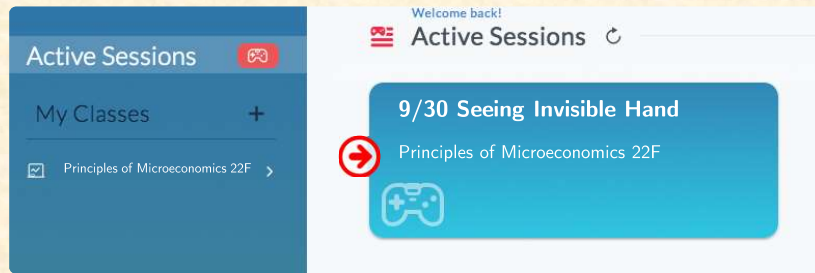
Seeing the Invisible Hand (發現看不見的手)

1. Was the card you received red or black? What was the card number and dollar amount? Did you make a trade? Earn or lose money? What was your net profit? 你抽到紅牌還是黑牌? 牌面數字或金額是多少? 買賣有成交嗎? 賺了還是虧了? 淨得多少好處或利潤呢?

Round (回合)	1	2	3	4
Color (牌面顏色)	R(紅)、B(黑)	R(紅)、B(黑)	R(紅)、B(黑)	R(紅)、B(黑)
Num. (牌面數字)	J			
Dollar (牌面金額)	110			
Price (成交價格)	78			
Earn/Lose (盈虧)	E(賺)、L(賠)	E(賺)、L(賠)		
Profit (好處/利潤)	32			

Cross if no trade (沒有成交就打X)

Enter the Activity



Each group send one to draw a card

(請每組派一位來找主持人抽一張撲克牌)

Sellers buy [Product Card] from OMG

(賣方各組請跟老天鵝進貨)

Fill out the top of Q1 for Round 2

(填寫學習單第 1 題第 2 回合的上半部)

見看不見的手)

1. Was the card you received red or black? What was the card number and dollar amount? Did you make a trade? Earn or lose money? What was your net profit? 你抽到紅牌還是黑牌? 牌面數字或金額是多少? 買賣有成交嗎? 賺了還是虧了? 淨得多少好處或利潤呢?

Round (回合)	1	2	3	4
Color (牌面顏色)	R(紅)、B(黑)	R(紅)、B(黑)	R(紅)、B(黑)	R(紅)、B(黑)
Num. (牌面數字)				
Dollar (牌面金額)				



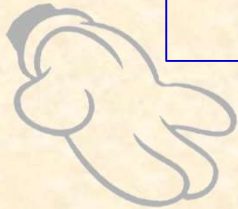
To complete the trade, pairs who reach agreements should **bring cards & \$\$** to

(成交雙方請帶著撲克牌和籌碼找...



➤ ~~Round 1: Free-form bargaining (3min) 第一回合: 自由交易~~

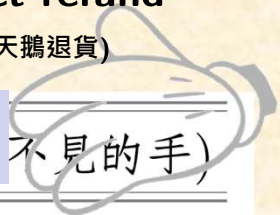
➤ Round 2: Free-form bargaining (3min) 第二回合: 自由交易



Return your card if no trade; sellers get refund from **OMG** (請沒有成交的各組交回撲克牌、賣方請跟老天鵝退貨)

Fill out the bottom of Q1 for Round 2

(填寫學習單第 1 題第 2 回合的下半部)

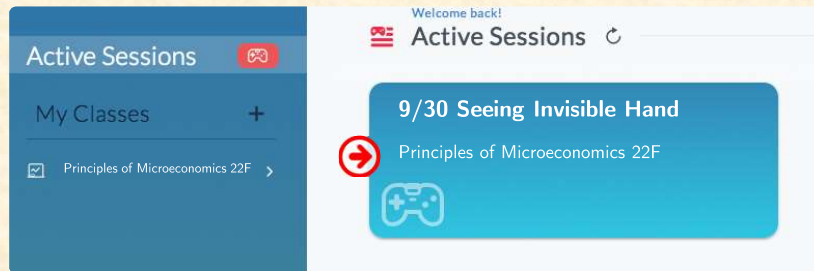


1. Was the card you received red or black? What was the card number and dollar amount? Did you make a trade? Earn or lose money? What was your net profit? 你抽到紅牌還是黑牌? 牌面數字或金額是多少? 買賣有成交嗎? 賺了還是虧了? 淨得多少好處或利潤呢?

Round (回合)	1	2	3	4
Color (牌面顏色)	R(紅)、B(黑)	R(紅)、B(黑)	R(紅)、B(黑)	R(紅)、B(黑)
Num. (牌面數字)				
Dollar (牌面金額)				
Price (成交價格)				
Earn/Lose (盈虧)	E(賺)、L(賠)	E(賺)、L(賠)	E(賺)、L(賠)	E(賺)、L(賠)
Profit (好處/利潤)				



Enter the Activity



Each group send one to draw a card

(請每組派一位來找主持人抽一張撲克牌)

Sellers buy [Product Card] from OMG

(賣方各組請跟老天鵝進貨)

Fill out the top of Q1 for Round 3

(填寫學習單第 1 題第 3 回合的上半部)

見看不見的手)

1. Was the card you received red or black? What was the card number and dollar amount? Did you make a trade? Earn or lose money? What was your net profit? 你抽到紅牌還是黑牌? 牌面數字或金額是多少? 買賣有成交嗎? 賺了還是虧了? 淨得多少好處或利潤呢?

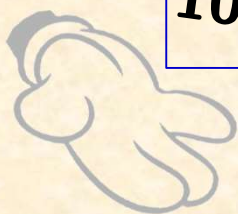
Round (回合)	1	2	3	4
Color (牌面顏色)	R(紅)、B(黑)	R(紅)、B(黑)	R(紅)、B(黑)	R(紅)、B(黑)
Num. (牌面數字)				
Dollar (牌面金額)				

To complete the trade, pairs who reach agreements should **bring cards & \$\$** to
 (成交雙方請帶著撲克牌和籌碼找...



- ~~➤ Round 1: Free-form bargaining (3min) 第一回合: 自由交易~~
- ~~➤ Round 2: Free-form bargaining (3min) 第二回合: 自由交易~~
- Round 3: Open Double Auction (3min) 第三回合: 喊價競標

107 SELL !! 23 BUY TAKE!



Return your card if no trade; sellers get refund from OMG (請沒有成交的各組交回撲克牌、賣方請跟老天鵝退貨)

Fill out the bottom of Q1 for Round 3

(填寫學習單第 1 題第 3 回合的下半部)



- Was the card you received red or black? What was the card number and dollar amount? Did you make a trade? Earn or lose money? What was your net profit? 你抽到紅牌還是黑牌? 牌面數字或金額是多少? 買賣有成交嗎? 賺了還是虧了? 淨得多少好處或利潤呢?

Round (回合)	1	2	3	4
Color (牌面顏色)	R(紅)、B(黑)	R(紅)、B(黑)	R(紅)、B(黑)	R(紅)、B(黑)
Num. (牌面數字)				
Dollar (牌面金額)				
Price (成交價格)				
Earn/Lose (盈虧)	E(賺)、L(賠)	E(賺)、L(賠)	E(賺)、L(賠)	E(賺)、L(賠)
Profit (好處/利潤)				



- **What is the supply-demand model? (Q2)**
- **How is this classroom experiment related to it? (**

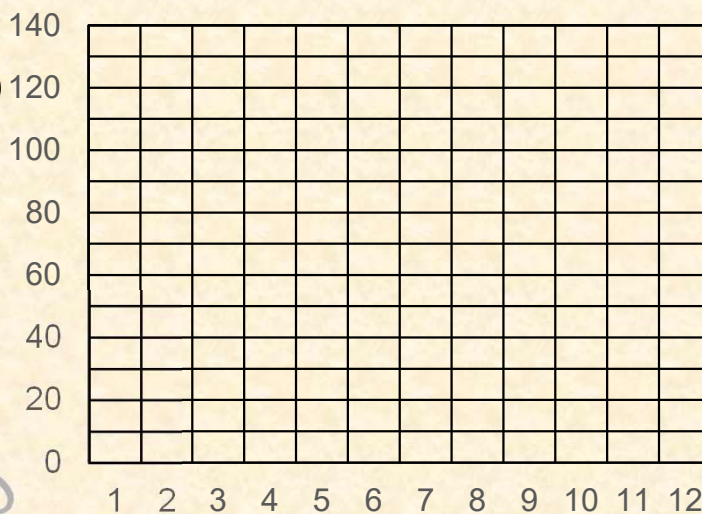
學2: 你聽說過「供需模型」嗎? 這個遊戲跟供需模型有什麼關係?)

- **Review your record in Q1** (請檢視你在學 1 中關於第一回合的記錄)

Round (回合)	1	2	3	4
Color (牌面顏色)	R(紅)、B(黑)	R(紅)、B(黑)	R(紅)、B(黑)	R(紅)、B(黑)
Num. (牌面數字)				
Dollar (牌面金額)				

- **Buyers please report values from your record sheet** (請扮演買方的各組從學習單爆出你的商品價值)

Price
(價格)



Quantity
(數量)

➤ **Sellers please report costs from your record sheet** (請扮演賣方的各組從學習單爆出你的商品價值)

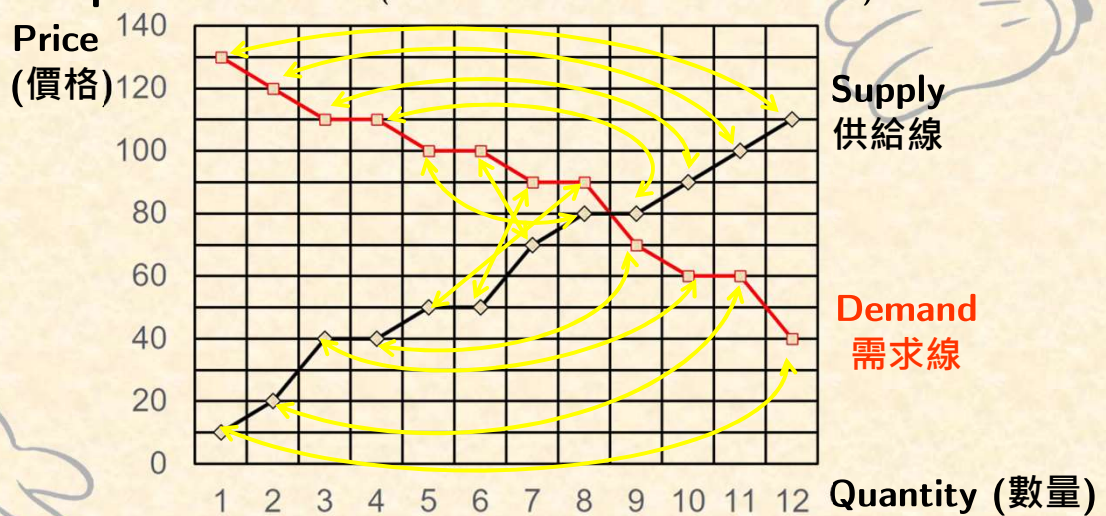
➤ **How is your reservation price related to the card you received? (Q3)**

(學3: 在找尋交易機會時, 你能夠接受的「價格底限」跟抽到的牌有什麼關係呢?)

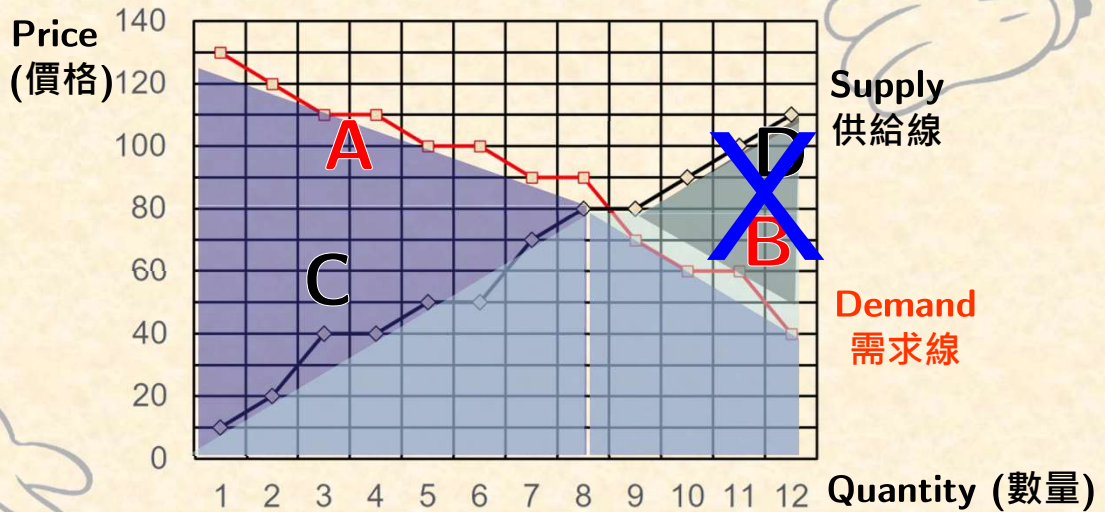
➤ **When the price is \$X, how many buyers and sellers want to trade? (Q4)**

(學4: 當價格被設定在X元時, 買賣雙方各有多少人願意交易呢?)

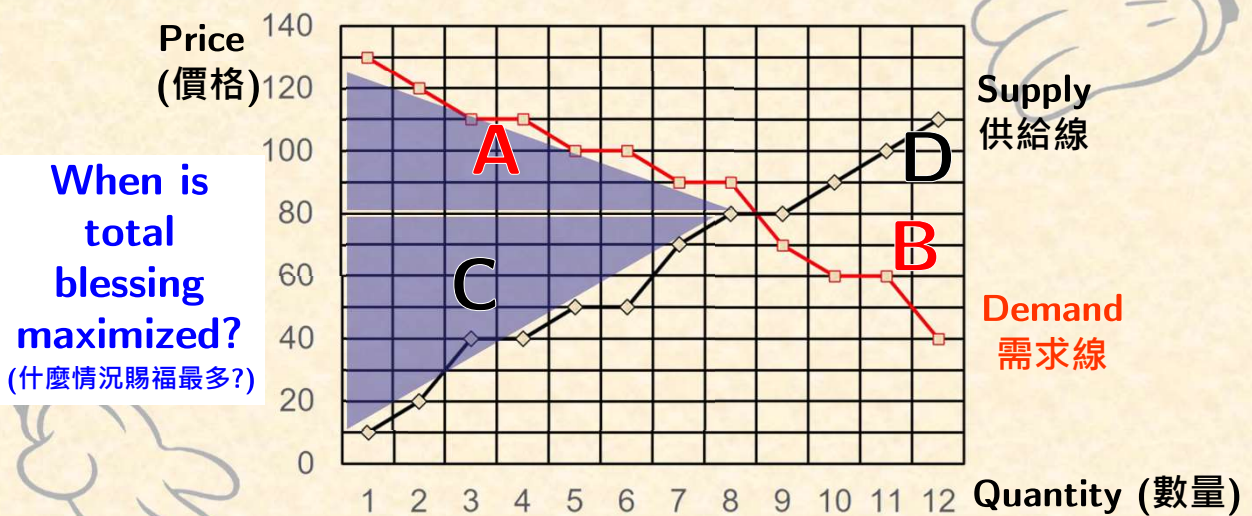
➤ **What is the maximum number of trade possible here? (學5: 範例中可能成交的最大數量是多少?)**



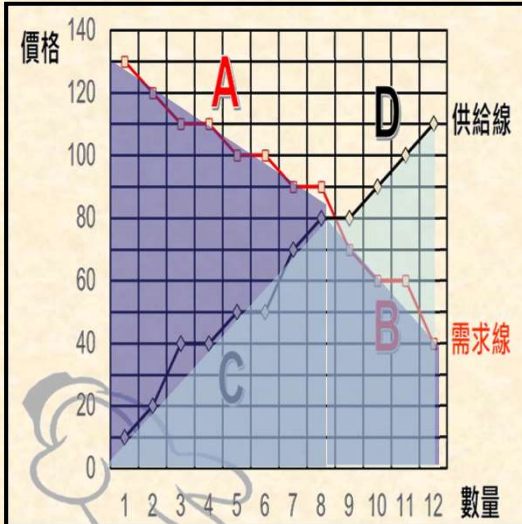
➤ Is it always good to have more transactions? How do we define good? (Q6) (學6: 成交量愈多愈好嗎? 怎麼訂出「好」的標準?)



➤ Is it always good to have more transactions? How do we define good? (Q6) (學6: 成交量愈多愈好嗎? 怎麼訂出「好」的標準?)



➤ Is it always good to have more transactions? How do we define good? (Q6) (學6: 成交量愈多愈好嗎? 怎麼訂出「好」的標準?)



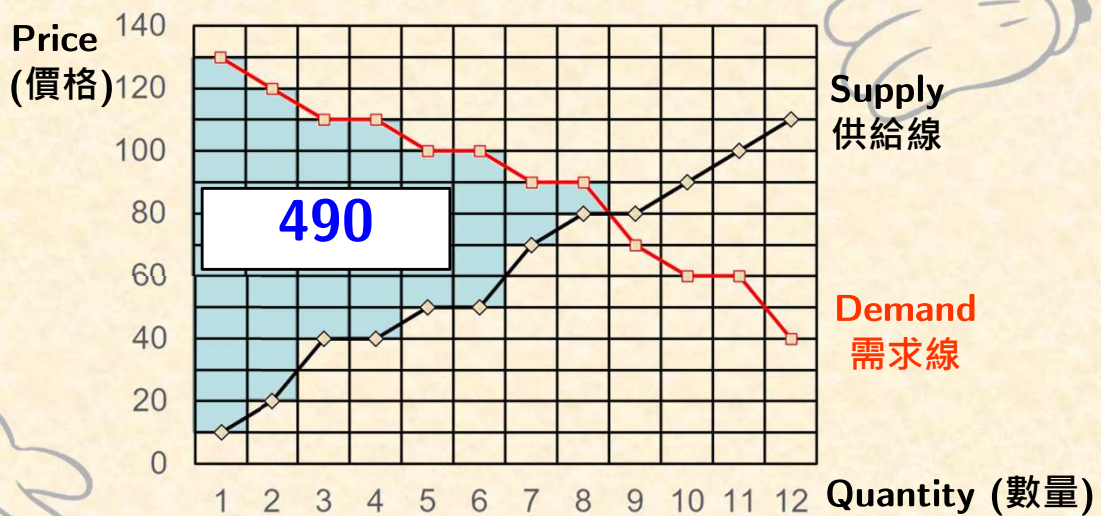
Equality (不患寡而患不均)

- ✓ Aver. blessing = $(A + B - C - D) \times \frac{1}{24}$
- ✓ (平均每人賜福) (需調查每個人抽到什麼牌·然後配對)
- ✓ Require knowing everyone's card
- ✓ **Will you tell the truth?** (會否誠實申報?)

Efficiency (老天鵝最大賜福)

- ✓ Aver. blessing = $(A - C) \times \frac{1}{16} \times \frac{16}{24}$
- ✓ (平均每人賜福)
- ✓ **Happens naturally** (根據自利原則自然發生)

➤ Calculate the (**ideal**) total amount of blessing (Q6) (學6: 最大的總賜福量 (理想值) 是多少?)



➤ Calculate Round 1's **actual** total amount of blessing (Q7)

(學7: 請計算第一回合老天鵝**實際的**總賜福量)

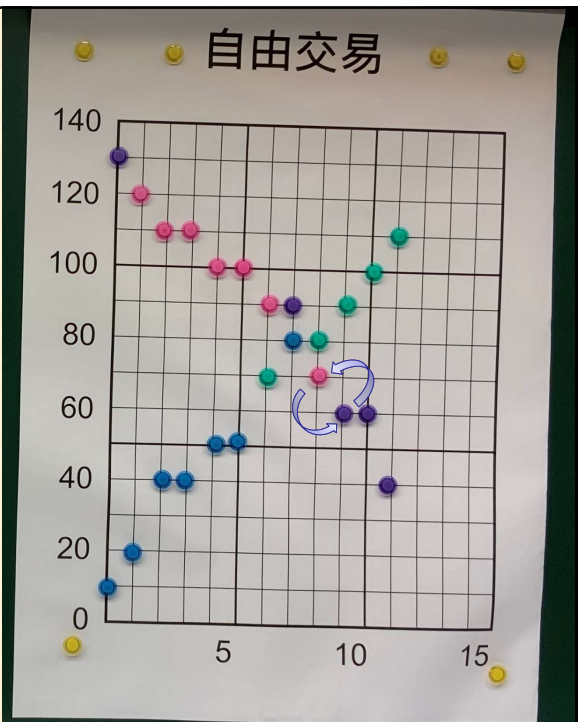
➤ $A = 120 + 110 + 110 + 100 + 100 + 90 + 60 = 690$

➤ $B = 10 + 20 + 40 + 40 + 50 + 50 + 80 = 290$

➤ $A - B = 400$, so $400/490 = 81.6\%$

➤ (Q1) What is your card in Round 3? Did you trade?

(學1: 第三回合時你抽到什麼牌? 有沒有成交?)



➤ Calculate Round 3's **actual** total amount of blessing (Q7)

(學7: 請計算第三回合老天鵝**實際的**總賜福量)

➤ $A = 130 + 120 + 110 + 100 + 100 + 90 + 90 = 740$

➤ $B = 10 + 20 + 40 + 40 + 50 + 50 + 70 = 280$

➤ $A - B = 460$, so $460/490 = 93.9\%$

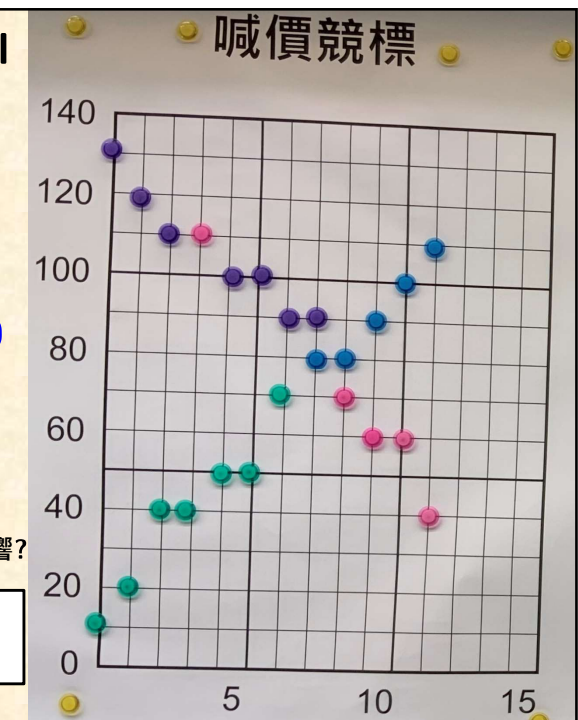
➤ Does (each) transaction price affect total amount of blessing?

(學8: 總賜福量會不會受到(各筆交易的)成交價格所影響? 為什麼?)

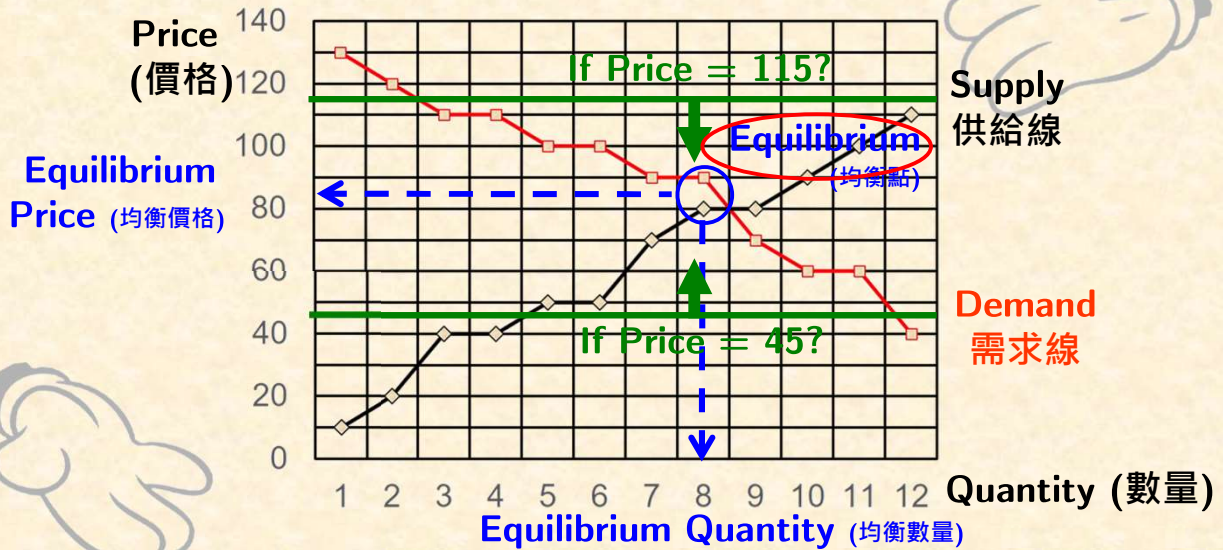


Which are affected?

(哪些結果會受到影響?)



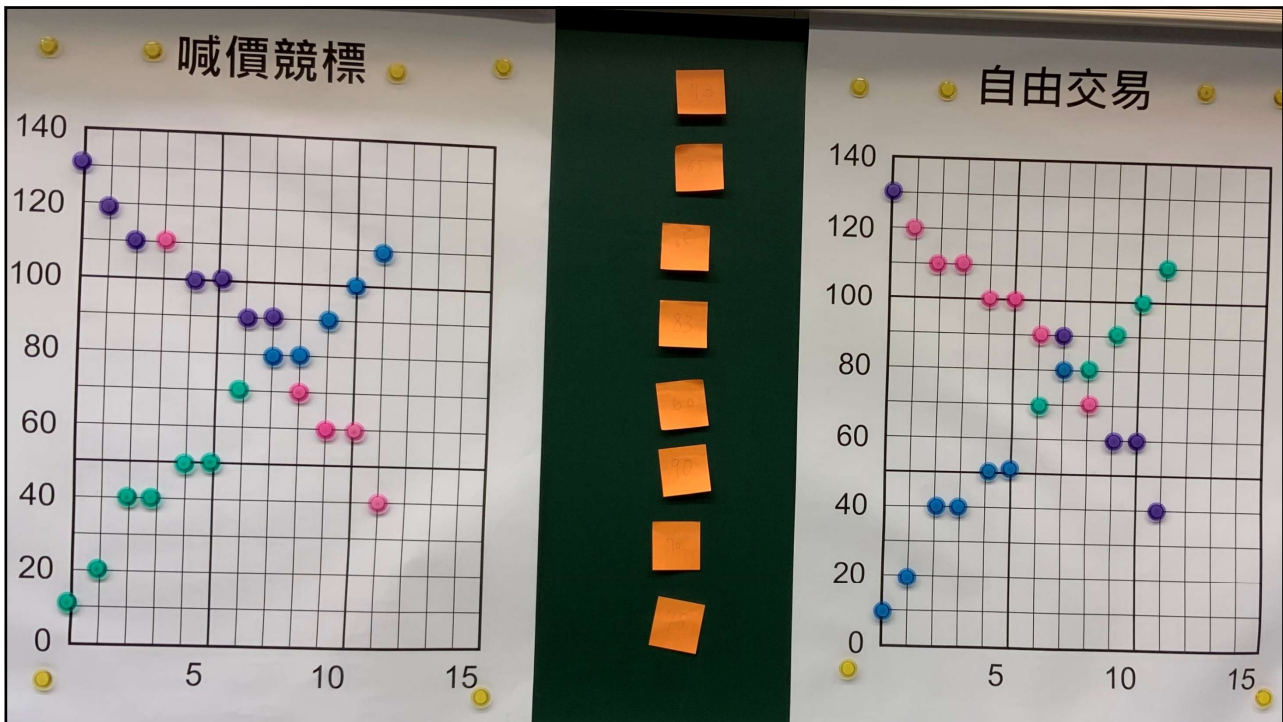
➤ How does the supply-demand model predict transaction? (學9: 供需理論如何預測成交價格?)



Does theory predict data well?

理論的預測能力如何? Q10 (學10)

Price (價格)? Quantity (數量)?



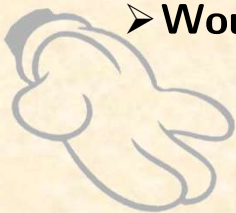
➤ What is the difference between free-form bargaining and open double auction? Does this lead to different outcomes?

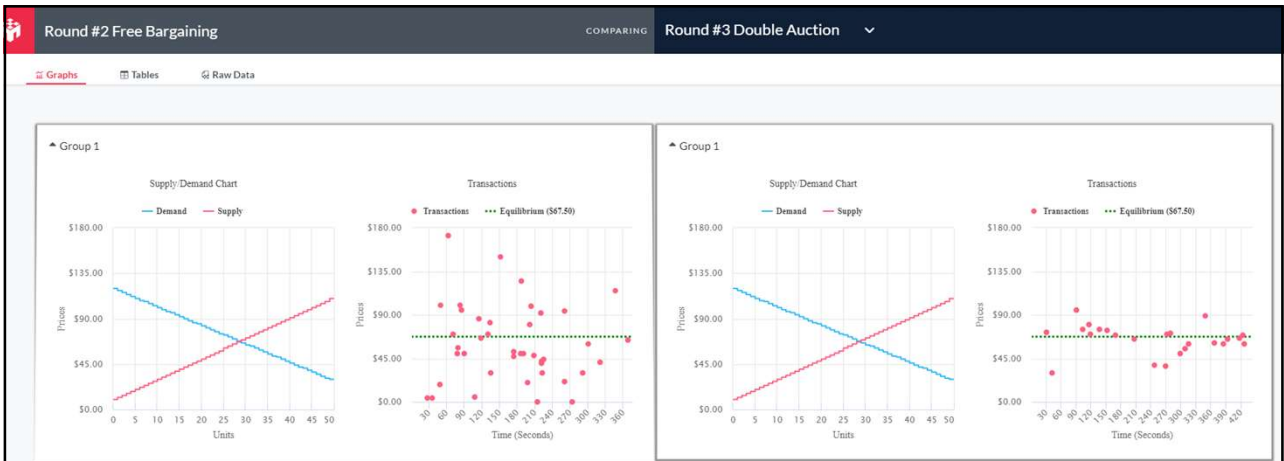
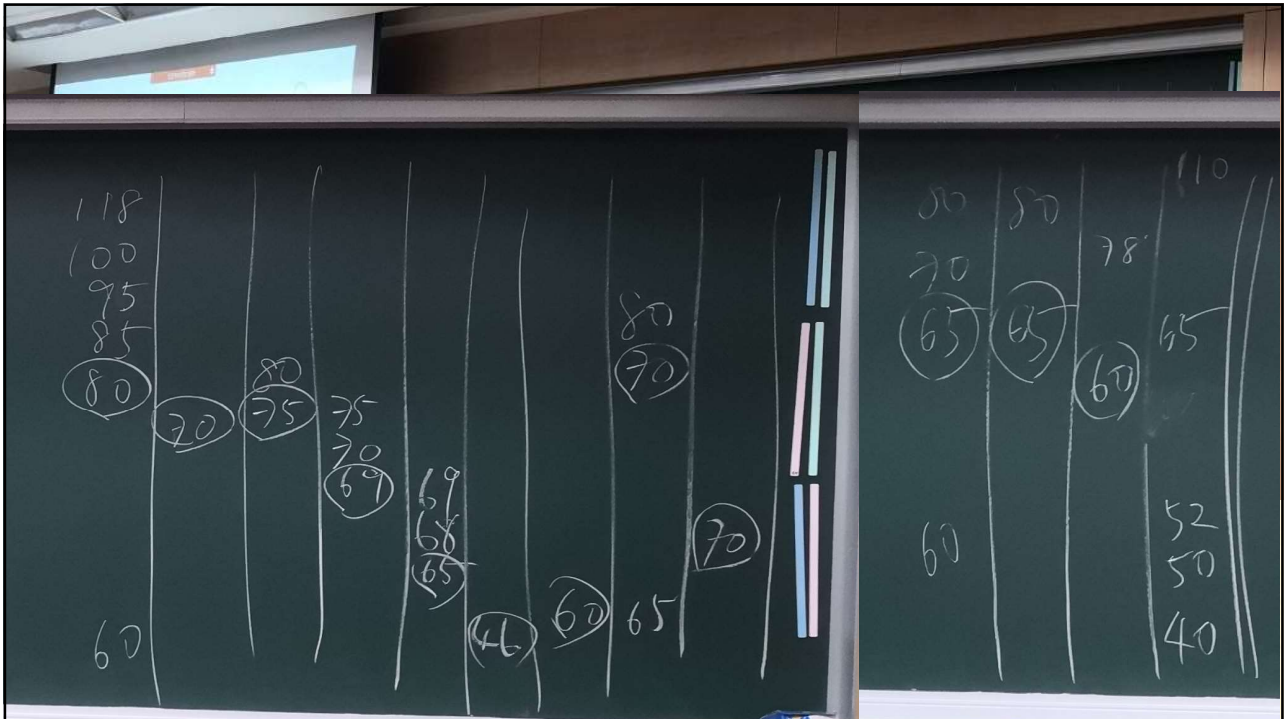
(學11: 「自由談判」與「喊價競標」這兩種交易制度有哪些不同之處? 會產生不一樣的結果嗎? 為什麼?)

➤ **Free-form Bargaining** (自由談判) → **Medieval Market** (古時候的市集)

➤ **Double Auction** (喊價競標) → **NYSE** (股市交易所)

➤ **Would classroom layout affect market formation?**
(教室場地會不會影響市集的形成?)





➤ **Free-form Bargaining** (自由談判) ➔

You guys didn't even stand up! How did you trade?

➤ **Double Auction** (喊價競標) ➔ **NYSE** (股市交易所)

Enter the Activity



The screenshot shows a mobile application interface. On the left is a dark blue sidebar with the text 'Active Sessions' at the top, a 'My Classes' section with a plus sign, and a checked box for 'Principles of Microeconomics 22F'. The main content area is white and says 'Welcome back!' above 'Active Sessions'. A blue card highlights the session '9/30 Price Control and Taxation' for 'Principles of Microeconomics 22F', with a red arrow icon pointing to it and a game controller icon below.



Orange Market

Groups of 5 sellers and 5 buyers.
Trade to maximize your profits!

*Orange producer,
selling oranges*



賣方有**三顆**橘子要賣，
成本由低往高
每顆橘子的售價可以不同

*Hungry consumer,
buying oranges*




買方要買**三顆**橘子，
價值由高往低
每顆橘子的買價可以不同

SELLER **身分** 賣方

條件 成本 手上數量 目前獲利

Cost	\$0.65
Oranges	3/3
Earnings	\$0.00

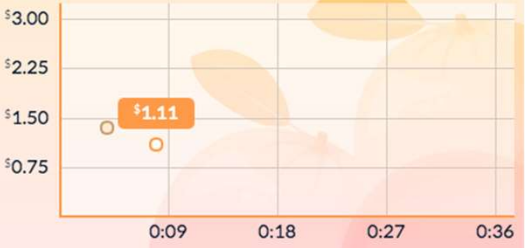


ASK

\$1.24

Profit \$0.59

Order Book >



BIDS	ASKS
\$1.03	\$1.62
\$0.51	\$2.10
\$0.30	--

OR Sell at Highest Bid

SELLER Order Book >

已發生的成交資訊

目前掛出的買價 BIDS
與賣價 ASKS

BIDS	ASKS
\$1.03	\$1.62
\$0.51	\$2.10
\$0.30	--

ASK

OR

Sell at Highest Bid

SELLER Order Book >

Cost \$0.65

Oranges 3/3

Earnings \$0.00

用滑桿要價

\$1.24 Profit \$0.59

<

可移動

ASK

>

利潤要自己算

BIDS	ASKS
\$1.03	\$1.62
\$0.51	\$2.10
\$0.30	--

以最高叫價售出

Sell at Highest Bid

BUYER Order Book >

身分
買方

條件
價值
手上數量
目前好處

Value	\$1.38
Oranges	0/3
Earnings	\$0.00

Profit \$0.34

\$1.04

BID

or Buy at Lowest Ask

BIDS	ASKS
\$0.34	\$0.87
\$0.23	\$0.90
--	\$1.03

Price Chart: \$0.75 to \$3.00, 0:12 to 0:48. A price of \$0.71 is highlighted.

BUYER Order Book >

Value	\$1.38
Oranges	0/3
Earnings	\$0.00

Profit \$0.34

\$1.04

BID

or Buy at Lowest Ask

BIDS	ASKS
\$0.34	\$0.87
\$0.23	\$0.90
--	\$1.03

Price Chart: \$0.75 to \$3.00, 0:12 to 0:48. A price of \$0.71 is highlighted.

用滑桿叫價

好處要自己算

可移動

以最低要價買入

交易何時發生?

- ✓ 買方直接按下成交鍵 **Buy at Lowest Ask**
- ✓ 買方的叫價 **BID** 高過市場上賣方的最低要價
(等同以按下成交鍵、以最低要價買入)
- ✓ 賣方直接按下成交鍵 **Sell at Highest Bid**
- ✓ 賣方的要價 **ASK** 低於市場上買方的最高叫價
(等同以按下成交鍵、以最高叫價賣出)

準備好了嗎?

填寫學習單第 1 題第 3 回合的上半部

你看見了哪隻手？

1. 你扮演買方還是賣方？商品的價值或成本是多少？買賣有成交嗎？賺了還是虧了？淨得多少好處或利潤呢？

回合	1	2	3	4	5
扮演角色	買、賣	買、賣	買、賣	買、賣	買、賣
價值/成本					

第 3 回合: 線上競標 (2 min)

- 請沒有成交的買賣方交回撲克牌
- 請完成學習單第 1 題的下半部第 4 回合

發現看不見的手

1. 你抽到紅牌還是黑牌？牌面數字或金額是多少？買賣有成交嗎？賺到或虧到嗎？淨得多少好處或利潤呢？

回合	1	2	3	4
牌面顏色	紅、黑	紅、黑	紅、黑	紅、黑
牌面數字				
牌面金額				
成交價格				
盈虧	賺、賠	賺、賠	賺、賠	賺、賠
好處/利潤				

如果沒有成交就打X

5

新角色登場



BIG
BROTHER



老大哥说了算!



老大哥說：

線上競標 (2 min)

Round y

成交價不得高於 X 元

準備好了嗎?



老大哥說：

線上競標 (2 min)

Round x

成交的賣方可得到 X 元的補貼

準備好了嗎？



認識看得見的手

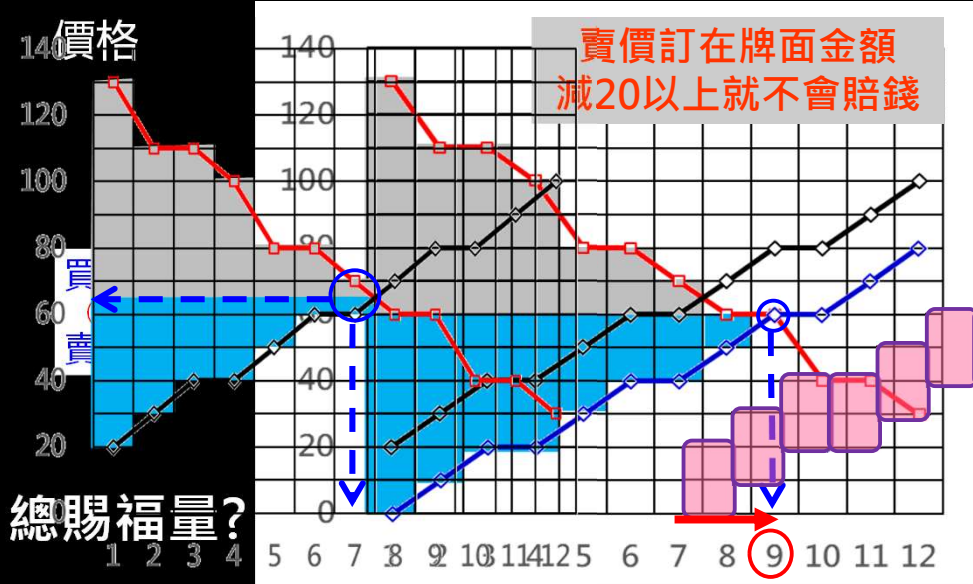
老大哥說：

補貼不是白白補貼的
來~ 人民，收稅了！
(以老大哥收支平衡為原則)

- 請更新學習單第 1 題的得分
- 被老大哥要求繳稅時你有什麼感受或想法? (學19)

Round 5 成交者的賣方可得 20 補貼

如何擬定
買賣策略?



會產生哪些
影響? (學20)
請準備記錄

數量

The End

(遊戲結束)

Please count your Ecoins

(請結算自己的籌碼)

10Ecoins = 1 Point

