

## Welcome

- Welcome to today's experiment and thanks for coming.
- This is an experiment in the economics of decision-making. The instructions will explain today's experiment in more detail.
- Depending on the decisions that you and others make, you can earn an appreciable amount of money.
- At the end of today's session you will be paid in private and in cash.

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- We will now describe the nature of the experiment. Please follow along with these instructions as they are read aloud.

## Structure of the Experiment

- The main part of the experiment consists of 10 rounds.
- We will also ask you to complete 2 decision-making tasks at the end of the experiment, for which you will be able to earn additional money.
- We will now describe the main part of the experiment. Instructions for the 2 decision-making tasks will follow after the main part of the experiment is complete.

## Experimental Currency

- During the experiment, we will use a hypothetical currency (“tokens”) to keep track of your earnings.
- At the end of the experiment, tokens will be converted into pounds using the following exchange rate:

**20 tokens = £1**

## Roles

- At the beginning of the experiment, you will be randomly assigned a role.
- Your role can be either a **buyer** (2/3 chance) or a **seller** (1/3 chance).
- Your role will remain the same across all 10 rounds of the experiment.

## Token Balance

- Each participant will start the experiment with a token balance.
- If you are a buyer, you will start with a balance of **100 tokens**.
- If you are a seller, you will start with a balance of **0 tokens**.
- At the end of each round, your token balance will be updated to reflect your earnings in that round.

## Markets

- In each round of the experiment, you will be randomly divided into markets consisting of 3 participants each: 2 buyers and 1 seller.
- The participants in your market can change across the 10 rounds of the experiment.
- In each market, there is a single fictitious item for sale.
- The item will be sold to 1 of the 2 buyers using an auction.

## Values

- Each buyer is given a **value** for the item between 0 and 100 tokens.
- Each value between 0 tokens and 100 tokens is equally likely.
- Each buyer's value is drawn randomly each round.
- The buyers' values are private information.
  - Each buyer only knows their own value (not the other buyer's value).
  - The seller does not know either of the buyers' values.

## Bids

- Each buyer submits a **bid** for the item.
- The minimum bid is 0 tokens and the maximum bid is 100 tokens.
- The bids are submitted independently and simultaneously.

## Rules

- The rules of the auction are as follows. In each market,
  - The buyer who submits the **highest bid** wins the item (ties are broken randomly by the computer).
  - The price of the item is equal to the amount of the **highest bid**.

## Outcome

- Each buyer observes whether or not they won the item.
- Only the winner and the seller observe the price of the item.

## Buyers' Earnings

- The winner receives their value for the item, minus the price of the item.
- The other buyer does not earn any money.
- In other words, buyers' earnings can be described as follows:

$EARNINGS = VALUE - PRICE$   
(if the buyer is the winner)

$EARNINGS = 0$   
(if the buyer is not the winner)

- Each buyer's earnings are added to their token balance.

## **Seller's Earnings**

- The seller receives the price of the item.
- In other words, the seller's earnings can be described as follows:

$$\text{EARNINGS} = \text{PRICE}$$

- The seller's earnings are added to their token balance.

## **Example #1**

- You are a buyer with a value of 80.
- You submit a bid of 60.
- The other buyer submits a bid of 50.
  
- You win the item.
- The price of the item is 60.
  
- Your earnings:  $80 - 60 = 20$
- The other buyer's earnings: 0
- The seller's earnings: 60

## Example #2

- You are a buyer with a value of 80.
- You submit a bid of 60.
- The other buyer submits a bid of 70.
  
- The other buyer wins the item.
- The price of the item is 70.
  
- Your earnings: 0
- The other buyer's earnings: The other buyer's value - 70
- The seller's earnings: 70

## Timeline of an Experimental Round

1. You are randomly divided into markets consisting of 3 participants each: 2 buyers and 1 seller.
2. In each market, there is a single fictitious item for sale. The item will be sold to 1 of the 2 buyers using an auction.
3. Each buyer is given a value for the item. Each value is between 0 tokens and 100 tokens. All values are equally likely. Each buyer's value is drawn randomly each round. The buyers' values are private information.
4. Each buyer submits a bid for the item. The bids are submitted independently and simultaneously.
5. In each market, the buyer who submits the highest bid wins the item. The price of the item is equal to the amount of the highest bid.
6. Each buyer observes whether or not they won the item. Only the winner and the seller observe the price of the item.
7. The winner receives their value for the item, minus the price of the item. The seller receives the price of the item.
8. Each participant's earnings are added to their token balance.



## **How Final Earnings are Calculated**

- Your final earnings in the experiment are the sum of the following items:
  - token balance at the end of 10 rounds (converted to pounds)
  - earnings from 2 decision-making tasks
- You will be paid privately and in cash at the end of the experiment.

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- Your role will remain the same across all 10 rounds of the experiment.

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## Markets

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## Rules

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  - The price of the item is equal to the amount of the **lowest bid**.

## Outcome

- Each buyer observes whether or not they won the item.
- Only the winner and the seller observe the price of the item.

## Buyers' Earnings

- The winner receives their value for the item, minus the price of the item.
- The other buyer does not earn any money.
- In other words, buyers' earnings can be described as follows:

$\text{EARNINGS} = \text{VALUE} - \text{PRICE}$   
(if the buyer is the winner)

$\text{EARNINGS} = 0$   
(if the buyer is not the winner)

- Each buyer's earnings are added to their token balance.

## **Seller's Earnings**

- The seller receives the price of the item.
- In other words, the seller's earnings can be described as follows:

$$\text{EARNINGS} = \text{PRICE}$$

- The seller's earnings are added to their token balance.

## **Example #1**

- You are a buyer with a value of 80.
- You submit a bid of 60.
- The other buyer submits a bid of 50.
  
- You win the item.
- The price of the item is 50.
  
- Your earnings:  $80 - 50 = 30$
- The other buyer's earnings: 0
- The seller's earnings: 50



## Example #2

- You are a buyer with a value of 80.
- You submit a bid of 60.
- The other buyer submits a bid of 70.
  
- The other buyer wins the item.
- The price of the item is 60.
  
- Your earnings: 0
- The other buyer's earnings: The other buyer's value - 60
- The seller's earnings: 60

## Timeline of an Experimental Round

1. You are randomly divided into markets consisting of 3 participants each: 2 buyers and 1 seller.
2. In each market, there is a single fictitious item for sale. The item will be sold to 1 of the 2 buyers using an auction.
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4. Each buyer submits a bid for the item. The bids are submitted independently and simultaneously.
5. In each market, the buyer who submits the highest bid wins the item. The price of the item is equal to the amount of the lowest bid.
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## **How Final Earnings are Calculated**

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- Your role will remain the same across all 10 rounds of the experiment.

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## Bids

- Each buyer submits a **bid** for the item.
- The minimum bid is 0 tokens and the maximum bid is 100 tokens.
- The bids are submitted independently and simultaneously.
- The seller observes the 2 bids in their market and then determines the outcome of the auction. That is, the seller decides which buyer wins the item and the price of the item.

## Rules

- The rules of the auction are as follows. In each market,
  - The buyer who submits the **highest bid** wins the item.
  - The price of the item is equal to the amount of the **lowest bid**.

## **Rules**

- The seller will be informed about the rules of the auction before determining the outcome.
- However, the seller does not have to follow the rules of the auction when determining the outcome.
- In particular, the seller can select either buyer as the winner and can choose any price for the item (as long as the price is not greater than the winner's bid).

## **Outcome**

- Each buyer observes whether or not they won the item.
- Only the winner and the seller observe the price of the item.



## Buyers' Earnings

- The winner receives their value for the item, minus the price of the item.
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- Suppose that the seller follows the rules of the auction.
- You win the item.
- The price of the item is 50.
  
- Your earnings:  $80 - 50 = 30$
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## Example #2

- You are a buyer with a value of 80.
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- Suppose that the seller follows the rules of the auction.
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5. The seller observes the 2 bids in their market and then determines the outcome of the auction (i.e., the winner and the price of the item). The seller will be informed about the rules of the auction, which state that the buyer who submits the highest bid wins the item and that the price of the item is equal to the amount of the lowest bid.
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## Bids

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## Outcome

- In particular, the seller can:
  1. select either buyer as the winner
  2. choose any price for the item (as long as the price is not greater than the winner's bid)

## Outcome

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## Buyers' Earnings

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(if the buyer is the winner)

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## Example #2

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- The other buyer submits a bid of 50.
  
- Suppose that the seller:
  - selects you as the winner
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- Your earnings:  $80 - 60 = 20$
- The other buyer's earnings: 0
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## Example #3

- You are a buyer with a value of 80.
- You submit a bid of 60.
- The other buyer submits a bid of 70.
  
- Suppose that the seller:
  - selects the other buyer as the winner
  - chooses a price of 60
  
- Your earnings: 0
- The other buyer's earnings: The other buyer's value - 60
- The seller's earnings: 60

## Example #4

- You are a buyer with a value of 80.
- You submit a bid of 60.
- The other buyer submits a bid of 70.
- Suppose that the seller:
  - selects the other buyer as the winner
  - chooses a price of 70
- Your earnings: 0
- The other buyer's earnings: The other buyer's value - 70
- The seller's earnings: 70

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