

## Appendix: Experimental Instructions

### Introduction:

Welcome!

This experiment is designed to study decision making. There will be 8 short experimental sections followed by 1 survey section on the computer. After all computer sections have been completed, there will also be an additional survey performed with pen and paper. In each section you will be asked to answer a number of questions. Specific instructions will be given at the start of each section.

At the end of the experiment, two questions will be selected at random from those you answered from the 9 experimental sections. The amount of money that you get at the end of the experiment will depend on your answers to these questions. Anything you earn will be added to your show-up fee of \$10. Unless otherwise stated, you will be paid with cash at the end of the experiment.

Please turn off cellular phones now.

Please do not talk or in any way communicate with other participants during the experiment.

We will start with a brief instruction period. During this instruction period, you will be given a description of the main features of the experiment and will be shown how to use the program. If you have any questions during this period, please raise your hand.

**After you have completed the experiment, please remain quietly seated until everyone has completed the experiment.**

Most questions in the experiment will take the form of lists of choices. For example, Question A might ask you to choose between receiving some amount of money (say \$12) in one week's time, or different amounts of money now. In such a case, Question A would look like this:

\$12 in 1 week's time  \$1.00 today  
 \$12 in 1 week's time  \$2.00 today  
 \$12 in 1 week's time  \$2.50 today  
 \$12 in 1 week's time  \$3.00 today  
 \$12 in 1 week's time  \$3.50 today  
 \$12 in 1 week's time  \$4.00 today  
 \$12 in 1 week's time  \$4.50 today  
 \$12 in 1 week's time  \$4.75 today  
 \$12 in 1 week's time  \$5.00 today  
 \$12 in 1 week's time  \$5.25 today  
 \$12 in 1 week's time  \$5.50 today  
 \$12 in 1 week's time  \$5.75 today  
 \$12 in 1 week's time  \$6.00 today  
 \$12 in 1 week's time  \$7.00 today

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For each line in the list, you must choose between the option on the left or the option on the right. Note that on each line, the option on the left stays the same in each row, while the option on the right gets better as one goes down the list.

You can select the option you like by clicking on the button next to that option.

If question A was then selected as the one that will be paid at the end of the experiment, then ONE line will be selected at random from those in Question A, and you will be paid according to your choice on that line. That is, if Question A was selected, then a line would be randomly chosen between the first line (choice between \$12 in 1 week's time and \$1.00 today) and the last line (choice between \$12 in 1 week's time and \$7.00 today) with equal probability. If, for example, the first line was chosen, then your payment for the experiment would depend on your choice on the first line. If you had chosen '\$12 in 1 week's time', then that is what you would receive- \$12 in one week's time. If you have chosen \$1.00 today, then that is what you would receive.

At the start of each round, all the buttons will be unselected. At the bottom of the screen there will be two buttons: 'Auto complete left' and 'Auto complete right'. Clicking the 'Auto Complete Left' button at any time will select the left option on each line of the list for which you have not already made a choice. Similarly, 'Auto Complete Right' will select the right option for each line in which you have not made a selection. Clicking the 'Clear Selection' button will reset all of the buttons.

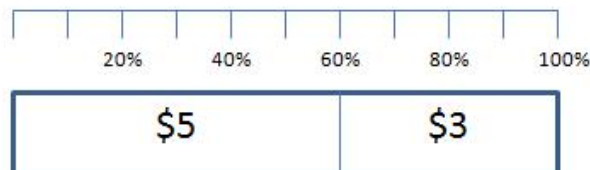
You are free to change your selections at any time, whether or not you have used an Auto complete button. Once you have made a selection on every line, you may press the 'Next' button to move on to the next question. Once you click 'Next', you proceed to the next question. You cannot go back and modify your answer to previous questions.

### Practice Questions:

The experiment will begin with three practice questions, designed to familiarize you with the program.

The questions asked in this section will not be selected for payment. They have been included to give you an idea of what the questions will be like.

In these questions, you will be asked to choose between receiving a certain amount of money for sure, or playing a lottery. These lotteries will be represented in the following way:



This lottery ticket has a 60% chance of winning \$5 and a 40% chance of winning \$3.

Remember, this is a practice round, and these questions cannot be selected for payment.

There are 3 practice questions.

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**You have now completed all three practice questions, and are ready to begin the experiment.**

Please note that the following questions are no longer practice, and may be selected as the questions that determine your payment.

**Section 1:**

In this section of the experiment you will be asked questions about amounts of money that you may receive IN THE FUTURE. In particular, these questions will concern amounts of money that you may receive after some delay – for example \$5 received in 10 days' time.

For the questions in this section, payment will not be made in cash. Instead, we will prepare a check that you will receive after the relevant delay. This check will be made out today and placed in an envelope which you will be asked to address. This envelope will then be mailed at the relevant time. For example, if the payment was to be made today then it will be sent today. If payment is in a week's time, then the envelope will be mailed in seven days' time.

There are 6 questions in this section.

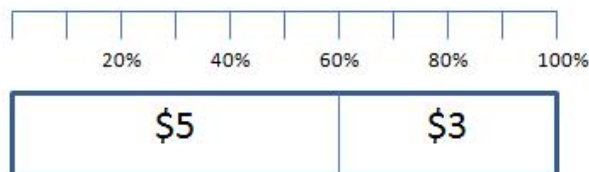
*Example question:*

Please choose between the following options. Note that the day specified is the day on which the check will be mailed.

\$10 in 2 week's time	\$4.00 today
\$10 in 2 week's time	\$5.00 today
\$10 in 2 week's time	\$6.00 today
\$10 in 2 week's time	\$6.50 today
\$10 in 2 week's time	\$7.00 today
\$10 in 2 week's time	\$7.50 today
\$10 in 2 week's time	\$7.75 today
\$10 in 2 week's time	\$8.00 today
\$10 in 2 week's time	\$8.25 today
\$10 in 2 week's time	\$8.50 today
\$10 in 2 week's time	\$8.75 today
\$10 in 2 week's time	\$9.00 today
\$10 in 2 week's time	\$9.25 today
\$10 in 2 week's time	\$9.50 today
\$10 in 2 week's time	\$9.75 today
\$10 in 2 week's time	\$10.00 today
\$10 in 2 week's time	\$11.00 today

**Section 2:**

In this section of the experiment, you will be given various lottery tickets. These lotteries will be represented in the following way:



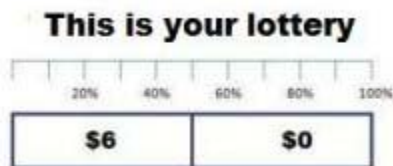
This lottery ticket has a 60% chance of winning \$5 and a 40% chance of winning \$3.

This lottery is yours to keep (if this is one of the questions that is selected at the end of the experiment). However, you will be offered the opportunity to exchange this lottery for certain amounts of money (for example \$5).

There are 3 questions in this section.

*Example Question:*

For these questions, the LOTTERY is a 50% chance of winning \$6 and a 50% chance of winning \$0. Here is a graphical representation of the lottery.



Lottery	\$0.50
Lottery	\$1.00
Lottery	\$1.25
Lottery	\$1.50
Lottery	\$1.75
Lottery	\$2.00
Lottery	\$2.25
Lottery	\$2.50
Lottery	\$2.75
Lottery	\$3.00
Lottery	\$3.25
Lottery	\$3.50
Lottery	\$4.00
Lottery	\$5.00

### Section 3:

In this section you will be asked to make choices between different lotteries. These questions will also be presented in the form of a list. Here is an example:

**This is your lottery**      **This is your alternative lottery**

20% 40% 60% 80% 100%      20% 40% 60% 80% 100%

\$6	\$0
-----	-----

\$6	\$0	x
-----	-----	---

Lottery    Alternative lottery with x = \$0.50

Lottery    Alternative lottery with x = \$1.00

Lottery    Alternative lottery with x = \$1.25

Lottery    Alternative lottery with x = \$1.50

Lottery    Alternative lottery with x = \$1.75

Lottery    Alternative lottery with x = \$2.00

Lottery    Alternative lottery with x = \$2.25

Lottery    Alternative lottery with x = \$2.50

Lottery    Alternative lottery with x = \$2.75

Lottery    Alternative lottery with x = \$3.00

Lottery    Alternative lottery with x = \$3.25

Lottery    Alternative lottery with x = \$3.50

Lottery    Alternative lottery with x = \$4.00

Lottery    Alternative lottery with x = \$5.00

Autocomplete Left   Autocomplete Right   Clear Selection   Next

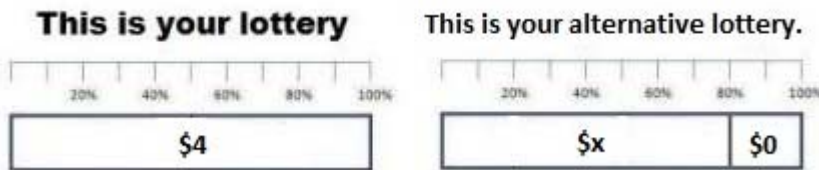
On the first line of the list you are asked to choose between the 'lottery' and the 'alternative lottery with a value of  $x = \$0.50$ '. Thus, on this line, you have to choose either a 50% chance of winning \$6 and 50% chance of winning \$0, or a 40% chance of winning \$6, a 40% chance of winning \$0 and a 20% chance of winning \$0.50.

On the second line you are asked to choose between the 'lottery' and the 'alternative lottery with a value of  $x = \$1.00$ '. Note that the option on the left (the lottery) stays the same one each line, with the option on the right (the alternative lottery with a value of  $x$  equal to some number) gets better as one goes down the list.

There are 15 questions in this section.

*Example Question:*

For these questions, the LOTTERY is a 100% chance of winning \$4. The ALTERNATE LOTTERY is an 80% chance of winning \$x, and a 20% chance of winning \$0. Here is a graphical representation of the lotteries.



Lottery	Alternate lottery with $x=\$4.00$
Lottery	Alternate lottery with $x=\$1.25$
Lottery	Alternate lottery with $x=\$4.50$
Lottery	Alternate lottery with $x=\$4.75$
Lottery	Alternate lottery with $x=\$5.00$
Lottery	Alternate lottery with $x=\$5.25$
Lottery	Alternate lottery with $x=\$5.50$
Lottery	Alternate lottery with $x=\$5.75$
Lottery	Alternate lottery with $x=\$6.00$
Lottery	Alternate lottery with $x=\$6.25$
Lottery	Alternate lottery with $x=\$6.50$
Lottery	Alternate lottery with $x=\$6.75$
Lottery	Alternate lottery with $x=\$7.00$
Lottery	Alternate lottery with $x=\$7.50$
Lottery	Alternate lottery with $x=\$8.00$
Lottery	Alternate lottery with $x=\$9.00$
Lottery	Alternate lottery with $x=\$10.00$

#### Section 4:

In this section of the experiment you will be asked to make choices based on the bags you can see at the front of the room. Notice that each question refers to a different bag.

These bags contain poker chips that are either red or black in color. You may be given some information about the number of red or black chips in the bag.

At the end of the experiment, a chip will be drawn from each bag by the research assistant. You will be asked to bet on the color of the chip that will be drawn, red or black. If the chip extracted is of the color you have bet on, then you win the bet (you will be told the amount you will win in each question).

Otherwise, you lose the bet, and get nothing. After the end of the experiment, you will be free to inspect the contents of each bag, if you so wish.

Once you have made your bet, you will be asked to choose between this gamble and different amounts of money. If you choose the gamble, then you 'play that gamble', and the amount of money you will win

will depend on the color of the chip that will be extracted. If you choose to take the money, then you will receive that amount of money regardless of the color of the chip drawn.

For example, imagine that you have been told that a bag has 5 red and 5 black chips and that if you correctly predict the color of the chip that is extracted, you will win \$3. Imagine that (again, for example) you choose to bet that a red chip will be drawn. Therefore, if you keep this gamble you will get \$3 if a red chip is drawn and \$0 otherwise. You are then asked if you would prefer to keep this gamble, or exchange it for \$1. If you choose to make the exchange, you will get \$1, regardless of the color of the chip drawn. If you choose to keep the gamble, then you will receive \$3 if a red chip is drawn and \$0 otherwise. In other words, you have to choose between the gamble and the amount of money before you discover which chip will be drawn from the bag.

There are 9 questions in this section.

*Example Question:*

Bag A (Remember that every question refers to a different bag) contains 40 chips, 20 of which are red and 20 of which are black.

If you win the bet on the color of the chip you will receive \$6. Otherwise, you will get \$0.

Which color would you bet on?

Red	Black
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Bag A contains 40 chips, 20 of which are red and 20 of which are black.

If you win the bet on the color of the chip you will receive \$6. Otherwise, you will get \$0.

You chose to bet on Red. This is your GAMBLE. Please make a choice on each of the lines below.

Gamble	\$0.50
Gamble	\$1.00
Gamble	\$1.25
Gamble	\$1.50
Gamble	\$1.75
Gamble	\$2.00
Gamble	\$2.25
Gamble	\$2.50
Gamble	\$2.75
Gamble	\$3.00
Gamble	\$3.25
Gamble	\$3.50
Gamble	\$4.00
Gamble	\$5.00

**Section 5:**

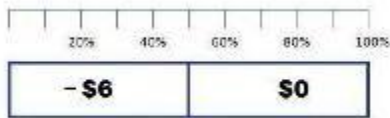
For questions in this section of the experiment, you will be given an extra \$10. That is, if a question from this section of the experiment is chosen as one that will be rewarded at the end of the experiment you will be given an extra \$10 on top of your show up fee.

In this section of the experiment, you will be given various lottery tickets. This lottery is yours to keep (if this is one of the questions that is selected at the end of the experiment). However, you will be offered the opportunity to exchange this lottery for other alternatives. Both the lottery and the alternative may involve LOSING money. These losses will be taken out of the \$10 you have been given for these questions.

There are 3 questions in this section.

*Example Question:*

For these questions the LOTTERY is a 50% chance of LOSING \$6 and a 50% chance of LOSING \$0. In other words, there is a 50% chance that \$6 will be taken from your earnings, and a 50% chance that nothing will be taken.



Lottery	Minus \$5.50 for sure
Lottery	Minus \$5.00 for sure
Lottery	Minus \$4.75 for sure
Lottery	Minus \$4.50 for sure
Lottery	Minus \$4.25 for sure
Lottery	Minus \$4.00 for sure
Lottery	Minus \$3.75 for sure
Lottery	Minus \$3.50 for sure
Lottery	Minus \$3.25 for sure
Lottery	Minus \$3.00 for sure
Lottery	Minus \$2.75 for sure
Lottery	Minus \$2.50 for sure
Lottery	Minus \$2.00 for sure
Lottery	Minus \$1.00 for sure



## Section 6:

In this section you will be asked to make choices between different lotteries. You are given an additional \$10 for these questions. These questions will also be presented in the form of a list. Here is an example:

**This is your lottery**      **This is your alternative lottery**

20% 40% 60% 80% 100%      20% 40% 60% 80% 100%

**-\$6**      **\$0**      **-\$6**      **\$0**      **x**

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Please select an option on each line.

- Lottery    Alternate Lottery with  $x = -\$5.50$
- Lottery    Alternate Lottery with  $x = -\$5.00$
- Lottery    Alternate Lottery with  $x = -\$4.75$
- Lottery    Alternate Lottery with  $x = -\$4.50$
- Lottery    Alternate Lottery with  $x = -\$4.25$
- Lottery    Alternate Lottery with  $x = -\$4.00$
- Lottery    Alternate Lottery with  $x = -\$3.75$
- Lottery    Alternate Lottery with  $x = -\$3.50$
- Lottery    Alternate Lottery with  $x = -\$3.25$
- Lottery    Alternate Lottery with  $x = -\$3.00$
- Lottery    Alternate Lottery with  $x = -\$2.75$
- Lottery    Alternate Lottery with  $x = -\$2.50$
- Lottery    Alternate Lottery with  $x = -\$2.00$
- Lottery    Alternate Lottery with  $x = -\$1.00$

Autocomplete Left   Autocomplete Right   Clear Selection   Next

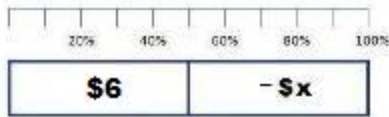
On the first line of the list you are asked to choose between the 'lottery' and the 'alternative lottery with a value of  $x = -\$5.50$ '. Thus, on this line, you have to choose either a 50% chance of losing \$6 and a 50% chance of losing \$0, or a 40% chance of losing \$0 and a 20% chance of losing \$5.50 from the \$10 that you were given.

On the second line you are asked to choose between the 'lottery' and the 'alternative lottery with a value of  $x = -\$5.00$ '. Note that the option on the left (the lottery) stays the same one each line, with the option on the right (the alternative lottery with a value of  $x$  equal to some number) gets better as one goes down the list.

There are 3 questions in this section.

*Example Question:*

For these questions, the LOTTERY is a 50% chance of WINNING \$6 and a 50% LOSING \$x. In other words, there is a 50% chance that \$6 will be added to your earnings, and a 50% chance that \$x will be taken.



\$0 for sure	The above lottery with $x = \$7.00$
\$0 for sure	The above lottery with $x = \$6.50$
\$0 for sure	The above lottery with $x = \$6.25$
\$0 for sure	The above lottery with $x = \$6.00$
\$0 for sure	The above lottery with $x = \$5.75$
\$0 for sure	The above lottery with $x = \$5.50$
\$0 for sure	The above lottery with $x = \$5.25$
\$0 for sure	The above lottery with $x = \$5.00$
\$0 for sure	The above lottery with $x = \$4.75$
\$0 for sure	The above lottery with $x = \$4.50$
\$0 for sure	The above lottery with $x = \$4.25$
\$0 for sure	The above lottery with $x = \$4.00$
\$0 for sure	The above lottery with $x = \$3.75$
\$0 for sure	The above lottery with $x = \$3.50$
\$0 for sure	The above lottery with $x = \$3.25$
\$0 for sure	The above lottery with $x = \$3.00$
\$0 for sure	The above lottery with $x = \$2.00$
\$0 for sure	The above lottery with $x = \$1.50$
\$0 for sure	The above lottery with $x = \$1.00$
\$0 for sure	The above lottery with $x = \$0.50$

### Section 7:

In this part of the experiment you will be paired with another person in this room. At no point will you know who you are paired with, nor will the person you are paired with know who you are.

You will either be player 1 or player 2. If you are player 1, then the person you are paired with is player 2, and vice versa.

Player 1 receives \$5. She can keep this money if she so wishes, or send a proportion of it to player 2. Any amount sent to player 2 will be TRIPLED by the experimenter. That is, if player 1 sends \$0, player 2 receives \$0. If player 1 sends \$5, player 2 receives \$15.

Player 2 receives any amount that player 1 decides to send (after it has been tripled by the experimenter). Player 2 can keep this money if she so wishes, or send a proportion of it BACK to player 1. Any amount sent to player 1 will NOT be tripled by the experimenter. That is, if player 2 sends back \$0, player 1 will receive \$0. If she sends back \$15, then player 2 will receive \$15.

The payment for player 1 is the amount of money that she did not send to player 2 PLUS the amount of money that player 2 sends back to her. The payment for player 2 is how much money she keeps (i.e. does not send back to player 1).

You will not learn whether you are player one or player two until after you have made your decisions.

You will not learn whether you are player one or player two until after you have made your decisions. Thus, you will be asked how much money you would send to player two IF YOU WERE PLAYER 1. Then, you will also be asked how you would behave IF YOU WERE PLAYER 2, that is, how much you would choose to send back to player 1 depending on how much player 1 has sent you.

There are 2 questions in this section.

*Example Questions:*

IF YOU ARE PLAYER 1 how much would you choose to send to player two? Remember, any amount you send will be tripled, and player 2 will then decide how much to send back to you. You may enter any amount in multiples of \$0.50, up to \$5.00. For example, if you want to send \$1, then type 1.00. If you want to send \$4.50, type 4.50.

Please enter your answer here: \_\_\_\_\_

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IF YOU ARE PLAYER 2 how much would you choose to send back to player one? Remember, you cannot return more money than you have (i.e. three times what the other player has sent).

- a) If player one sends \$0
- b) If player one sends \$0.50, and so you have \$1.50?
- c) If player one sends \$1.00, and so you have \$3.00?
- d) If player one sends \$1.50, and so you have \$4.50?
- e) If player one sends \$2.00, and so you have \$6.00?
- f) If player one sends \$2.50, and so you have \$7.50?
- g) If player one sends \$3.00, and so you have \$9.00?
- h) If player one sends \$3.50, and so you have \$10.50?
- i) If player one sends \$4.00, and so you have \$12.00?
- j) If player one sends \$4.50, and so you have \$13.50?
- k) If player one sends \$5.00, and so you have \$15.00?

### **Section 8:**

For questions in this section of the experiment, you will be given an extra \$10. That is, if a question from this section of the experiment is chosen as one that will be rewarded at the end of the experiment you will be given an extra \$10 on top of your show up fee.

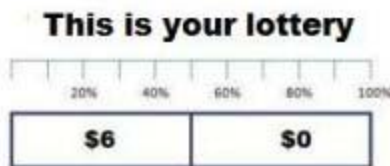
In each question you will be offered the opportunity to buy a lottery ticket. That is, you will be offered the opportunity to use some of this additional \$10 in order to buy a lottery ticket. If you choose to do so (and that question is selected as one that will be rewarded), then you will pay for the lottery the specified cost, and you would keep the remaining amount of money and the lottery.

For example, if you decide to pay 50c for the lottery, you get to keep \$9.50 and you get the outcome of the lottery.

There are 3 questions in this section.

*Example Question:*

For these questions, the LOTTERY is a 50% chance of winning \$6 and a 50% winning \$0.

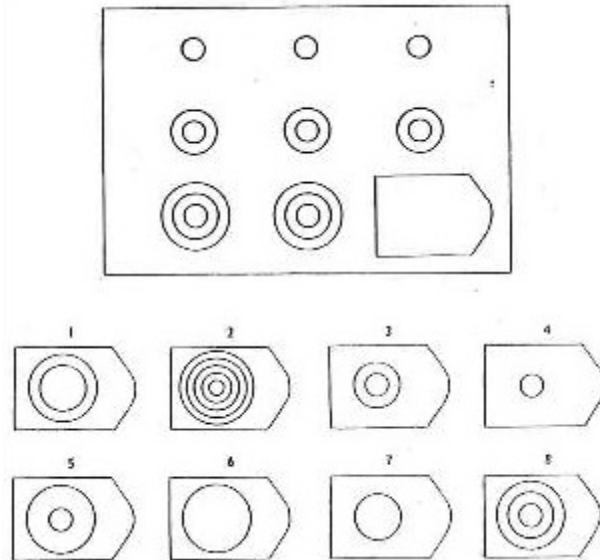


Please select an option on each line.

Keep \$10	Pay \$5.00 for the lottery (that is, get the lottery and keep the remaining \$5.00)
Keep \$10	Pay \$4.00 for the lottery (that is, get the lottery and keep the remaining \$6.00)
Keep \$10	Pay \$3.50 for the lottery (that is, get the lottery and keep the remaining \$6.50)
Keep \$10	Pay \$3.25 for the lottery (that is, get the lottery and keep the remaining \$6.75)
Keep \$10	Pay \$3.00 for the lottery (that is, get the lottery and keep the remaining \$7.00)
Keep \$10	Pay \$2.75 for the lottery (that is, get the lottery and keep the remaining \$7.25)
Keep \$10	Pay \$2.50 for the lottery (that is, get the lottery and keep the remaining \$7.50)
Keep \$10	Pay \$2.25 for the lottery (that is, get the lottery and keep the remaining \$7.75)
Keep \$10	Pay \$2.00 for the lottery (that is, get the lottery and keep the remaining \$8.00)
Keep \$10	Pay \$1.75 for the lottery (that is, get the lottery and keep the remaining \$8.25)
Keep \$10	Pay \$1.50 for the lottery (that is, get the lottery and keep the remaining \$8.50)
Keep \$10	Pay \$1.25 for the lottery (that is, get the lottery and keep the remaining \$8.75)
Keep \$10	Pay \$1.00 for the lottery (that is, get the lottery and keep the remaining \$9.00)
Keep \$10	Pay \$0.50 for the lottery (that is, get the lottery and keep the remaining \$9.50)

### Section 9:

You will now be presented with 17 questions. Each question will present you with a 3 x 3 matrix of images, with one missing. Please identify the missing element that completes the pattern. For example, examine the following image:



The correct answer would be 8, as the 8th image completes the pattern.

**Survey:**

You have now completed the main section of the experiment. We will now ask you to complete a post-survey questionnaire. This questionnaire asks some questions about your background. It also includes some questions designed to test various aspects of your personality. You do not have to answer any question that you do not wish to. Not answering a question will not affect the amount you are paid for the experiment.

**Demographic questions:**

Are you: \_\_\_ Male \_\_\_ Female \_\_\_ Prefer not to answer

How old are you? \_\_\_\_

What is your major/concentration? \_\_\_\_\_

What were your SAT scores? \_\_\_\_ Math \_\_\_\_ Reading \_\_\_\_ Writing

Will you be moving house or going on holiday at any point during the next seven weeks? \_\_\_ Yes \_\_\_ No