

Your Name: \_\_\_\_\_

Game Serial # \_\_\_\_\_

ECE 3530

## Spy Game Worksheet



Game: Before starting, players pick one of six colored tokens from a bag, retain it, but keep the color secret. Play proceeds clockwise. On their turn, players are given a chart and two dice. The player rolls one die in public and one in secret. The player uses the two die numbers and the colored chart to determine if their color was "hit" or "missed" on the chart. They announce the result to the other players. As the game goes on, the players try to determine each others' colors.

For the first round, record your calculations of probabilities for the first two players and your calculated values in the chart below. Take into account the result of the first player's turn when calculating the probabilities for the second player. Discuss the calculations with the other players. When talking about the calculations, pretend you do not know the color of the stone you picked.

For the in-class version of the game, the players try, at the end of a number of rounds, to guess who has which color. Be sure you record the players' die numbers and the hits or misses as the game progresses.

Note: For a more exciting version of the game, make an accusation at the start of your turn about another player's color by writing it on a slip of paper and handing it to that player. No one else sees it. If you are right, the other player is out of the game (but keeps taking turns). If you are wrong, you are out of the game (but keep taking turns).

Your calculations:

Player 1:	value
Public Die:	
Outcome: (hit or miss)	
$P(\text{player is Yellow})$	
$P(\text{player is Blue})$	
$P(\text{player is Orange})$	
$P(\text{player is Red})$	
$P(\text{player is Purple})$	
$P(\text{player is Green})$	

Player 2:	value
Public Die:	
Outcome: (hit or miss)	
$P(\text{player is Yellow})$	
$P(\text{player is Blue})$	
$P(\text{player is Orange})$	
$P(\text{player is Red})$	
$P(\text{player is Purple})$	
$P(\text{player is Green})$	

Record how many players' colors you guessed correctly at the end of the game:

Player #	Public Die	Hit or Miss
1		
2		
3		
4		
5		
6		

Player #	Public Die	Hit or Miss
1		
2		
3		
4		
5		
6		

1		
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4		
5		
6		

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