

Game Worksheet I	
Guideline:	For any number of sticks (n), find a winning strategy for either the first
	or the second player.
Game Rules:	1. Player A (Alice) starts the game and she can take any non-zero number of sticks, but not all.
	2. Player B (Bob) can take any non-zero number of sticks. But the number of sticks he takes cannot exceed the number of sticks Alice has taken.
	3. Each player then takes turns picking up sticks following the rule that he or she cannot take more sticks than the previous player does.
	4. Whoever picks up the last sticks wins the game.
Example 1	$n=6$: A: 2; B:2, A:2, A wins; A:2; B:1, A:1, B:1,A:1, A wins.
	Conclusion: If $n=6$, Player A has a winning strategy: If Player A follows that strategy, she always wins.
Example 2	$n=4$: A: 1, B:1, A:1, B:1, B wins; A:2; B:2, B wins; A:3, B:1, B wins.
	Conclusion: If $n=4$, Player B has a winning strategy: If he follows that strategy, he always wins.
Example 3	n = any odd number: A:1,B:1, A picks up the last one. A wins.
	Conclusion: If n is an odd number, player A has a winning strategy.
Problem	For what values of n , Player A has a winning strategy? For what values of n , Player B has a winning strategy?
Requirement:	We should attempt to find strategies that apply in general, not for just each particular number.