

Game Worksheet II	
Guideline:	For any number of sticks (n), find a winning strategy for either Player A (the starter) or Player B.
Game Rules:	<ol style="list-style-type: none"> 1. Player A starts the game and she can take any non-zero number of sticks, but not all. 2. Player B can take any non-zero number of sticks, but the number should not exceed twice of the number of sticks Player A has taken. 3. Each player then takes turns to pick up sticks. The rule is that he or she cannot take more than twice of the number of sticks the previous player has taken. 4. Whoever picks up the last sticks wins the game.
Example 1	$n=6$: A: 1; B:1,A:1,B:1, A:2, A wins; A: 1; B:1,A:1,B:2, A:1, A wins; A:1; B:2, A:3, A wins.
	Conclusion: If $n=6$, Player A has a winning strategy: If A follows that strategy, A always wins.
Example 2	$n=5$: A: 1, B:1, A:1, B:2, B wins; A: 1, B:1, A:2, B:1, B wins; A: 2, B:3, B wins;
	Conclusion: If $n=5$, the player B has a winning strategy: If B follows that strategy, B always wins.
Problem	For what values of n , Player A has a winning strategy? For what values of n , Player B has a winning strategy?

