

EQUILIBRIUM



Concept: Le Châtelier's Principle

Directions: Identify the reactions from the bank that fit each scenario on the left side of the table and write them in the columns to the right. **Multiple reactions can be used for each scenario, and each reaction can be used more than once.**

Reaction Bank

$\text{CO(g)} + \text{H}_2\text{O(g)} \rightleftharpoons \text{CO}_2\text{(g)} + \text{H}_2\text{(g)} + \text{Heat}$	$2\text{NO}_2\text{(g)} + \text{Heat} \rightleftharpoons 2\text{NO(g)} + \text{O}_2\text{(g)}$	$\text{N}_2\text{O}_4 + \text{Heat} \rightleftharpoons 2\text{NO}_2\text{(g)}$
$\text{H}_2\text{(g)} + \text{CO}_2\text{(g)} + \text{Heat} \rightleftharpoons \text{H}_2\text{O(g)} + \text{CO(g)}$	$\text{H}_2\text{(g)} + \text{Cl}_2\text{(g)} \rightleftharpoons 2\text{HCl(g)} + \text{Heat}$	$\text{PCl}_3\text{(g)} + \text{Cl}_2\text{(g)} \rightleftharpoons \text{PCl}_5\text{(g)} + \text{Heat}$

Scenario	Matching Reaction(s)
Increasing the pressures of all substances in the reaction shifts it towards the products.	
Increasing the temperature of the reaction shifts it towards the reactants.	
Decreasing the concentration of H_2 shifts the reaction towards the products.	
Decreasing the temperature of the reaction shifts it towards the reactants.	
Decreasing the pressures of all substances in the reaction has no effect on the equilibrium.	
Increasing the concentration of NO_2 shifts the reaction towards the reactants.	