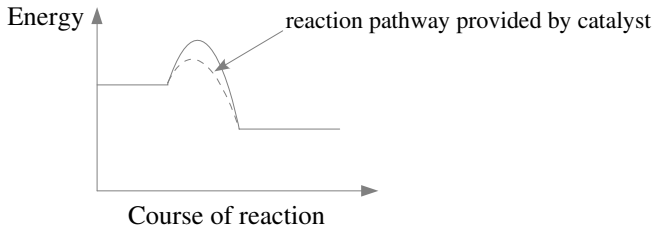
Year 12 Chemistry

Quick Quiz: Using and Controlling Reactions

1. (a) The catalyst provides an alternate reaction pathway with a lower activation energy, meaning more collisions per time between reactant particles are productive, so the reaction rate is faster.



   (b) No effect

2.

   (a) $$\frac{[NH_3]^2}{[N_2][H_2]^3} = \frac{0.4^2}{0.3 \times 0.4^3} = 8.33$$

   8.33 is greater than 0.5 therefore the equilibrium position will shift to the left.

   (b) $$\frac{[NH_3]^2}{[N_2][H_2]^3} = \frac{0.231^2}{0.38 \times 0.654^3} = 0.5$$

   No shift, the system is at equilibrium.

3.
   (a) Back reaction will be faster than forward reaction
   (b) Forward and back reactions are occurring at equal rate

4. The net reaction will occur to partially counteract the change, so in the direction that decreases the number of gas particles present. In this case therefore the equilibrium position will shift to the right (since there are 4 gas particles on the left and 2 on the right).

5. Fixed temperature, and closed system.