YEAR 12 CHEMISTRY
EQUILIBRIUM WORKSHEET 1

REACTION	CHANGE	OBSERVATIONS	POSITION OF EQUILIBRIUM	EXPLANATION
$H_{2(g)}$ + $I_{2(g)} \rightleftharpoons 2\ HI_{(g)}$ colourless violet colourless	Remove some HI at constant volume			
$Cu(H_2O)_4{}^{2+}{}_{(aq)}$ + $4\ C\ell^-{}_{(aq)}$ blue colourless $\rightleftharpoons CuC\ell_4{}^{2-}{}_{(aq)}$ + $4\ H_2O_{(\ell)}$ yellow	Remove $C\ell^-{}_{(aq)}$			
$N_{2(g)}$ + $3\ H_{2(g)} \rightleftharpoons 2\ NH_{3(g)}$ all colourless ΔH -ve	Decrease the temperature			
$2\ NO_{2(g)} \rightleftharpoons N_2O_{4(g)}$ ΔH -ve brown colourless	Raise the temperature			
$2\ CrO_4{}^{2-}{}_{(aq)}$ + $2\ H^+{}_{(aq)} \rightleftharpoons$ yellow $Cr_2O_7{}^{2-}{}_{(aq)}$ + $H_2O_{(\ell)}$ orange	Add $OH^-{}_{(aq)}$			

YEAR 12 CHEMISTRY
EQUILIBRIUM WORKSHEET 2

REACTION	CHANGE	OBSERVATIONS	POSITION OF EQUILIBRIUM	EXPLANATION
$2\ NO_{2(g)} \rightleftharpoons N_2O_{4(g)}\ \ \Delta H$ -ve brown colourless	Reduce the volume of the container			
$N_{2(g)} + 3\ H_{2(g)} \rightleftharpoons 2\ NH_{3(g)}$ all colourless ΔH -ve	Increase the volume of the container			
$CaCO_{3(s)} \rightleftharpoons CaO_{(s)} + CO_{2(g)}$ white white colourless ΔH +ve	Reduce the temperature			
$2\ CrO_4{}^{2-}{}_{(aq)} + 2\ H^+{}_{(aq)} \rightleftharpoons$ yellow $Cr_2O_7{}^{2-}{}_{(aq)} + H_2O_{(\ell)}$ orange	Increase the concentration of $CrO_4{}^{2-}{}_{(aq)}$			
$H_{2(g)} + \quad I_{2(g)} \rightleftharpoons 2\ HI_{(g)}$ colourless violet colourless	Add more H_2 at constant volume			

YEAR 12 CHEMISTRY
EQUILIBRIUM WORKSHEET 3

REACTION	CHANGE	OBSERVATIONS	POSITION OF EQUILIBRIUM	EXPLANATION
$Cu(H_2O)_4^{2+}{}_{(aq)} + 4 Cl^-{}_{(aq)}$ blue colourless $\rightleftharpoons CuCl_4^{2-}{}_{(aq)} + 4 H_2O_{(\ell)}$ yellow	Add water			
$H_{2(g)} + I_{2(g)} \rightleftharpoons 2 HI_{(g)}$ colourless violet colourless	Reduce the volume of the container			
$I_{2(g)} \rightleftharpoons I_{2(s)}$ violet black ΔH -ve	Remove $I_{2(s)}$			
$I_{2(g)} \rightleftharpoons I_{2(s)}$ violet black ΔH -ve	Increase the volume of the container			
$I_{2(g)} \rightleftharpoons I_{2(s)}$ violet black ΔH -ve	Increase the temperature			