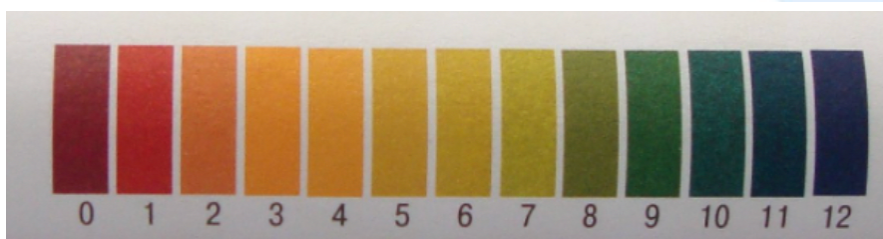


SL & HL Questions on Properties of acids & bases

- Give the equation for the reaction between dilute hydrochloric acid, $\text{HCl}(\text{aq})$, and:
 - potassium hydroxide solution, $\text{KOH}(\text{aq})$.
 - ammonia, $\text{NH}_3(\text{aq})$.
 - copper(II) oxide, $\text{CuO}(\text{s})$.
 - sodium hydrogencarbonate, $\text{NaHCO}_3(\text{s})$.
 - calcium carbonate, $\text{CaCO}_3(\text{s})$.
 - zinc metal, $\text{Zn}(\text{s})$.
- Distinguish between the terms *base* and *alkali*.
- Describe two different test-tube reactions to illustrate that a solution of sodium hydroxide, $\text{NaOH}(\text{aq})$ is basic.
- Give the equation for the reaction which occurs when solid ammonium chloride, $\text{NH}_4\text{Cl}(\text{s})$ is heated with potassium hydroxide solution, $\text{KOH}(\text{aq})$.
- The image below shows the colour of universal indicator paper at different pH values.



- Deduce the approximate colour when a strip of the indicator paper is placed in a dilute solution of ammonia.
 - If nitric acid is added in excess to this solution how would you expect the colour of the indicator paper to change?
- State the equation for the reaction between magnesium oxide, $\text{MgO}(\text{s})$ and sulfuric acid, $\text{H}_2\text{SO}_4(\text{aq})$.