

THEORY

The theory of the present experiment is based on the fact that the rate of reaction between a metal and an acid is directly proportional to the surface area of the metal. In other words, the larger the surface area of the metal, the faster the reaction will proceed. This is because a larger surface area provides more contact points for the acid molecules to react with the metal atoms.

Sl. No.	Mass of metal	Time taken for reaction	Rate of reaction
1	1.0g	100s	0.01
2	2.0g	50s	0.04
3	3.0g	33s	0.09
4	4.0g	25s	0.16
5	5.0g	20s	0.25

DISCUSSION

The results of the experiment clearly show that as the mass of the metal increases, the time taken for the reaction to complete decreases. This is because a larger mass of metal provides a larger surface area, which allows for a faster reaction rate. The data points show a clear inverse relationship between the mass of the metal and the time taken for the reaction to complete. For example, when the mass of the metal is 1.0g, the time taken is 100s, but when the mass is increased to 5.0g, the time taken is reduced to 20s. This demonstrates that the rate of reaction is directly proportional to the surface area of the metal.