

Grade 12 Physics

SPH4U

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Chapter 3

Unit 2: Energy and Momentum

3.1 Types of Collisions

3.1.1 Definitions

Collisions are typically classified based on the amount of **kinetic energy** the system has after the collision, in comparison to the amount of kinetic energy the system had before the collision. In other words, **how does E'_k with E_k ?**

3.1.2 Elastic Collisions

In an elastic collision, the kinetic energy of the system after the collision is **equal** to the kinetic energy of the system before the collision. In mathematics, the equation can be represented by:

$$E'_k = E_k$$

Remark. This does not mean the kinetic energy of the system after the collision is **equal** to the kinetic energy of the system before the collision (Unlike momentum)

Steps of the collision

Before the collision: The mechanical energy is entirely in the form of kinetic energy