

Energy or Momentum?

Mechanical Engineering

Choosing between the two integrated forms of Newton's second law.

Work and energy

- Links force to distance
- Scalar: no components to resolve
- Best when you want a speed
- Springs and friction are easy

Impulse and momentum

- Links force to time
- Vector: resolve each direction
- Best when you want a time or impulse
- The only method for collisions

THE DIFFERENCE THAT MATTERS

Distance in the question, use energy. Time or a collision, use momentum.

Momentum is conserved in every collision. Kinetic energy is conserved only in a perfectly elastic one.