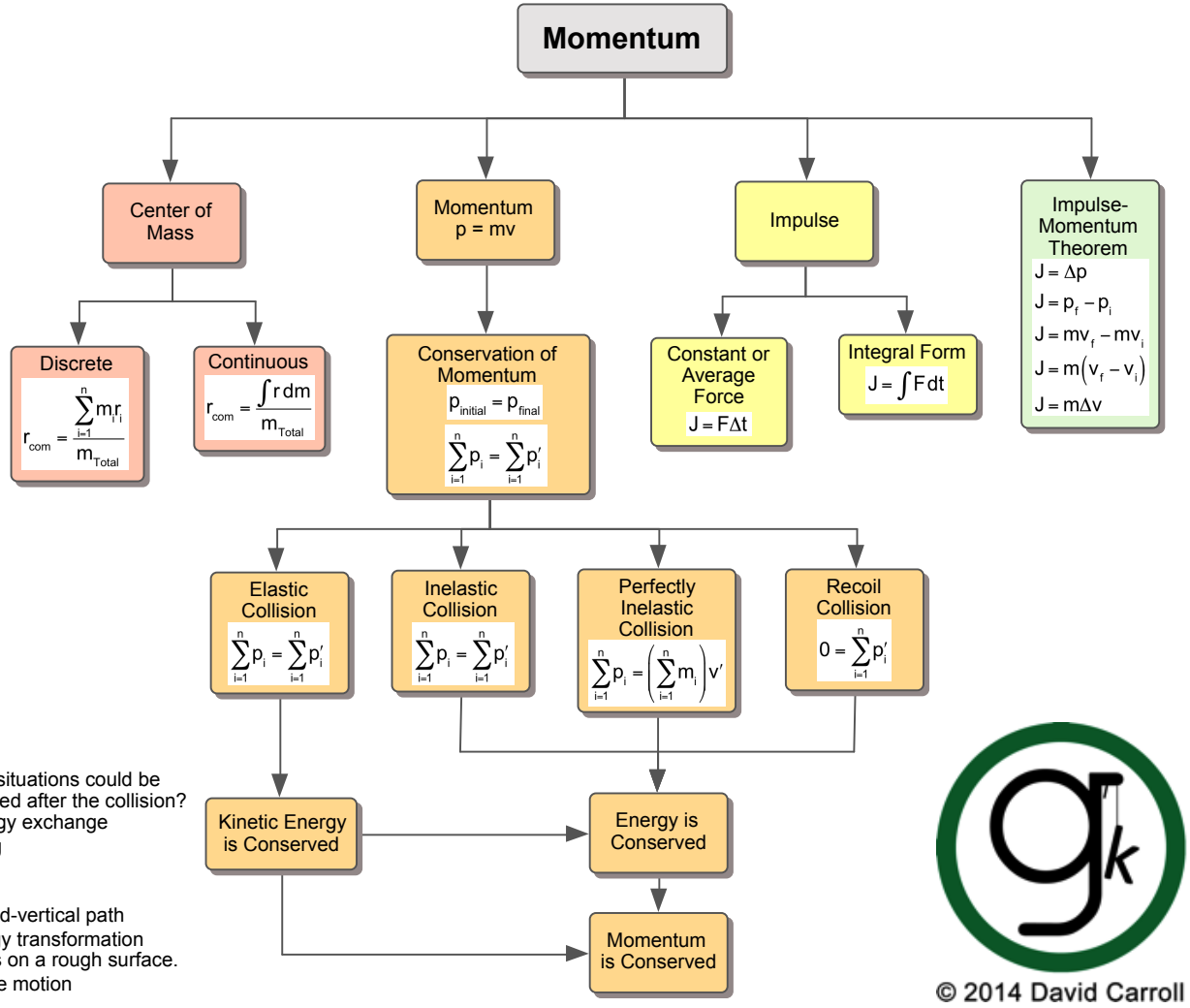
Mechanics

Enduring Understanding - Momentum is transferred when objects interact.

Essential Questions

1. Where must the center of mass lay?
2. What the relationship between Newton's Second Law and the conservation of momentum?
3. Which has a greater impact on the motion of an object: the force applied or the time applied?
4. What are the implications of Newton's Third Law of Motion?



Type of Collision Problems

Step #1
How can the bullet acquire energy (velocity)?
- o given an initial velocity
- o an energy transformation
  - ○ gravitational
  - ○ elastic

Step #2
How might the target and bullet collide?
- o hit and stick
- o hit and bounce
- o hit and pass through

Bullet (figurative) Target (figurative)

Step #3
What the situations could be encountered after the collision?
- – an energy exchange
  - ○ swing
  - ○ loop
  - ○ hill
  - ○ curved-vertical path
- - an energy transformation
  - ○ slides on a rough surface.
- – projectile motion