THINGS TO MAKE SURE YOU KNOW:

KINEMATICS:

The basics of kinematics – how velocity, acceleration, and position are related, how to solve problems involving these. This includes their graphs!

Vectors – how to add, subtract, find magnitude, find direction, decompose into i and j vector form, and find dot product

2 dimensional motion – separate x and y, connected by time

Projectile Motion – understand the basic concepts (acceleration only in y direction, velocity in x direction remains constant, connect x and y using time, symmetry that can be useful) and be able to solve problems (including using quadratic formula)

Circular Motion – understand what angular velocity, period, centripetal acceleration (and its direction), angular acceleration, and speed mean and how they are connected.

FORCES

Be able to identify the forces acting on an object, and not include any extraneous ones (no "centripetal force", normal force only when required)

Be able to draw a free body diagram and find the net force on an object

Newton's laws— how does force lead to acceleration? If no acceleration, does that mean no force? (No it means no net force). What happens to an object with no net force acting on it? If A exerts a force on B, what do we know about the force B exerts on A? Make sure you can apply these laws to conceptual situations as well as problem-solving.

Be able to apply these laws to problem-solving, including circular motion and projectile motion. Make sure you know how to connect the forces to the centripetal acceleration of an object in circular motion.

MOMENTUM AND ENERGY

Impulse – how to calculate it and how it relates to momentum

Momentum – how to calculate it, when is it conserved, how to solve 1 and 2 dimensional momentum conservation problems

Collisions – what "inelastic" and "elastic" collisions are and how to solve problems involving them

Energy – kinetic energy and how to calculate it, potential energy and how to calculate it, when energy is conserved, how to solve problems based on energy conservation.

Work – how to calculate work, what positive and negative work mean, how to solve problems based on the full energy equation (including external work and loss to friction)

REMEMBER: You need be able to apply these concepts to physical situations, either to solve problems or to answer conceptual questions. Don't just depend on being able to pick the right equation – you have to know what the equations mean, when to use them, and how to pick the right variables out of a physical situation.