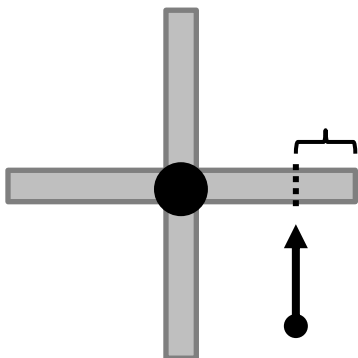


ANGULAR MOMENTUM OF OBJECTS IN LINEAR MOTION

- In some problems, an object moving in a straight line collides against an object fixed in a rotating axis:



- Remember we used Linear Momentum to solve Collision problems!
- BUT in this case, we need the first object's _____ Momentum, not its _____ Momentum.
 - But how do you get the _____ Momentum of an object that is moving in a straight line?!?
- An object in a straight line has Angular Momentum relative to **unrelated** axis of rotation → $L =$ _____
- Notice that this is the SAME equation as the Angular Momentum of a _____.

EXAMPLE: Two rotating doors, each 6.0 m long, are fixed to the same central axis of rotation, as shown above (top view). Suppose a 4 kg bird flying with 30 m/s horizontal is about to collide against the door, at a point 50 cm from one end. Calculate the bird's angular momentum about the axis through the center of the door, just before hitting the door.

→ Later we will see how to FULLY solve these types of Rotational Collisions! (For now, contain your excitement, please!)