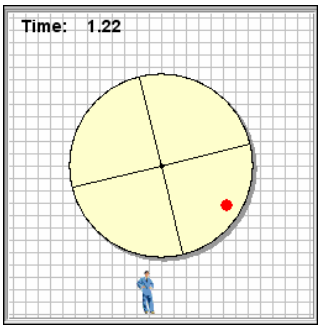
Worksheet for Exploration 11.5: Conservation of Angular Momentum



A man is standing beside a 150-kg merry-go-round and suddenly drops a red object onto the merry-go-round **(position is given in meters and time is given in seconds)**. You may change the mass of the object dropped on the merry-go-round and assume that the merry-go-round is a solid, uniform disk. Restart.

a. What happens to the final angular velocity of the merry-go-round when a heavier object is thrown onto it?
   i. Complete the table below and answer question a.

$r_{m.g.r.}$=_____ ω_{init}=_____

r_{mass}=_____

mass	ω_f	I_{init}	I_{final}	L
10 kg				
50 kg				
100 kg				
200 kg				
500 kg				

b. Is there a mass that you can add to make the final angular velocity exactly half of the initial angular velocity? If so, what is it?

c. How do your answers to (a) and (b) relate to the conservation of angular momentum?