

Week Seven Lab

Physics I

College of the Atlantic

General Instructions:

1. Goal for this lab: Explore angular momentum while avoiding injury.
2. **Be careful!** It's possible to lose your balance and fall down while doing these experiments.

Experiments

As we have seen in Chapter C14, angular momentum is conserved for an isolated system. Try out each of the following scenarios and explain what happens using conservation of angular momentum. The answers may surprise you.

1. Hold the two heavy weights and stand on the platform. Have someone give you a gentle spin. Very carefully move the weights in and out.
2. Stand on the platform and hold something heavy and unbreakable.
 - (a) Throw the heavy thing in such a manner that you end up rotating after the throw.
 - (b) Throw the heavy thing equally hard, but now throw it so that you don't rotate after the throw.
3. Stand on the platform and have someone throw something heavy and unbreakable at you.
 - (a) Throw the heavy thing in such a manner that you end up rotating after the throw.
 - (b) Throw the heavy thing equally hard, but now throw it so that you don't rotate after the throw.
4. Stand on the ground. Spin up the bicycle wheel and hold it horizontally. Then get on the platform. Turn the bicycle wheel upside down.
5. Stand on the platform and hold the wheel. (The wheel shouldn't be spinning yet.) Then, hold the wheel horizontally and give it a spin.