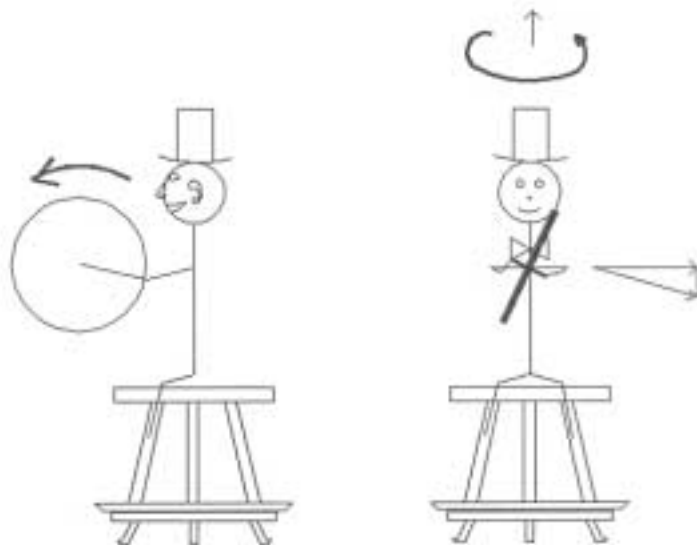


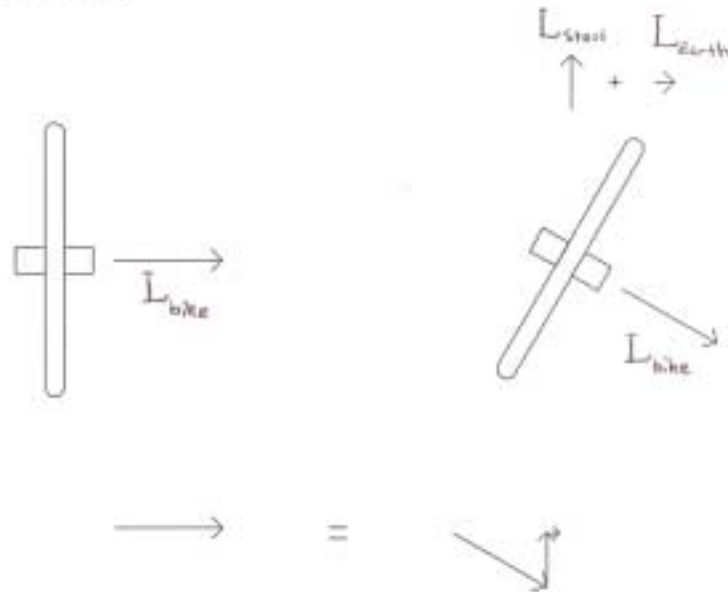
Conservation of Angular Momentum Rotating Stool & Bicycle Wheel



THINGS TO NOTE:

- If the bicycle wheel is brought against the motor wheel too quickly, the motor wheel may come off the shaft. Let the bicycle wheel slip until up to speed.

DIAGRAMS/EQUATIONS:



After the wheel has been tilted the angular momentum of the wheel is of the same magnitude but in a different direction. It now consists of a horizontal component as well as a component directed downwards. To conserve angular momentum the system rotates such to add an upward component to cancel the downward component from the wheel. This leaves a small amount of horizontal angular momentum that is sunk into the earth. This is shown vectorial below.

Note that because of conservation of energy students may wonder where the rotational energy of the spinning stool comes from. It is simply supplied by the muscles of the body when the wheel is tilted.