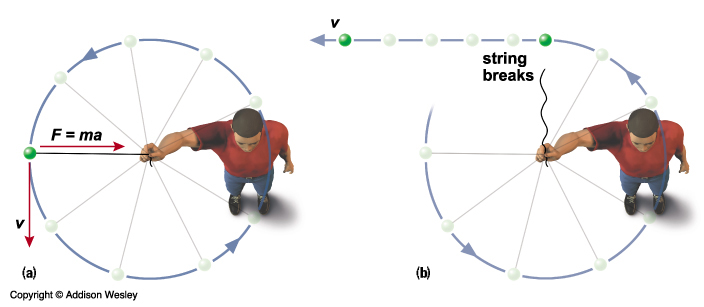
**Force and Motion Chapter 6**

**p64 find something soft to tie at the end of string and twirl above your head…where will it go-let it go and find out**



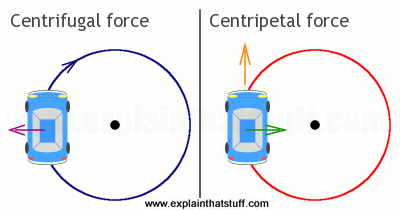
**P69-get on a merry go round and observe what happens as it goes faster-change your distance from its center**



**P79-ride in a car that goes in a circle or turns fast**

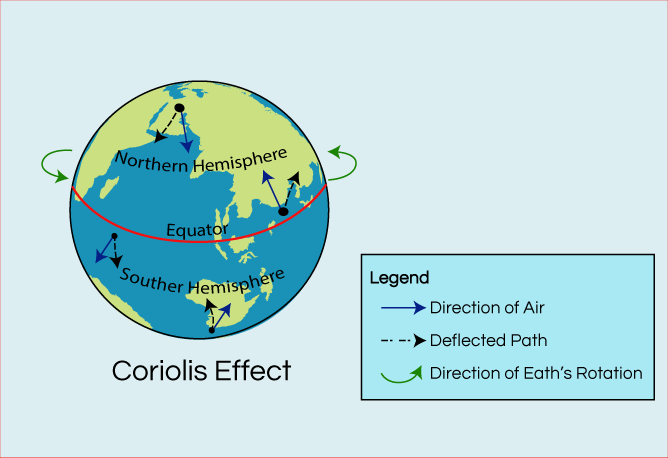
**Centrifugal force-**

**-the centrifugal force pushes you away from the center of the circular path-but really you want to go in a straight line, but the force is really the car door preventing you from going in that straight line**



**Merry go round-**

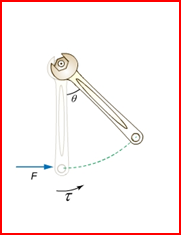
**Coriolis force**



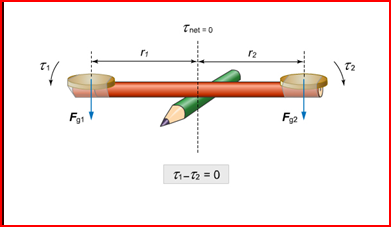
**-on the spinning Earth, this effect is responsible for wind patterns, the direction of spin of hurricanes, and the overall curved path of hurricanes**

**Rotational Motion**

**Torque**

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**Moment of inertia**

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**-to observe how an extended object rotates when a torque is exerted on it, use a pencil with coins taped at the ends**

**-hold a pencil between your thumb and forefinger and wiggle it back and forth**

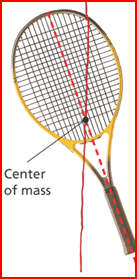
**-the forces that your thumb and forefinger exert, crate torques that change the angular velocity of the pencil and coins**

**-move the coins so that they are only 1 or 2cm apart and wiggles the pencil again and you should see that the torque that was required should be much less this time**

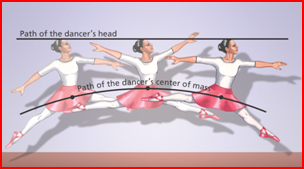
**Center of mass-**

**-to locate the center of mass of an object, suspend the object from any point and when the object stops swinging, the center of mass is along the vertical line drawn from the suspension point**

**-draw the line, and then suspend the object again from a different point, the second line will intersect the first line and that point will be your center of mass**

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**-the center of mass of a person varies with posture**

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**-by raising her arms and legs while in the air, the ballet dancer moves her center of mass closer to her head**

**-the path of the center of mass is a parabola, so the dancer’s head stays at**

**almost the same height for a surprisingly long time**

**Conditions for equilibrium**

**-it must first be in translational equilibrium meaning both its velocity and angular velocity are zero or constant**

**-it also must be in rotational equilibrium meaning that the net torque exerted on the object must be zero**

