OUTLINE: MOTION IN THE ATMOSPHERE

A) Air Pressure Measurement and Gas Law
   Pressure = Density X Constant X Temperature

B) Vertical Pressure Differences & Gravitational Energy
   Measure Air Pressure: Standard Air Pressure @ Sea Level
   14.7 lbs./sq. in. or 1013.2 mb or 29.92” of HG.

C) Horizontal Pressure Differences
   1. temperature differences
   2. change in water vapor content

D) Latitudinal Differences in Air Pressure
   1. effects of water and land distribution
   2. well-established stationary pressure cells based on seasonal changes:
      a. summer conditions for North America
      b. winter conditions for North America

E) Characteristics of High and Low Pressures
   Spiral effect for surface highs and lows

F) What Effects the Direction & Velocity of Winds?
   1. pressure gradient force: the difference in pressure between 2 points at the same elevation
   2. coriolis force
   3. frictional drag

G) Micro-Scale Winds
   1. sea/land breeze
   2. mountain/valley cycle
   3. Santa Anas
   4. drainage winds
   5. foehn or chinook winds

H) Monsoons
   geographical location and conditions

I) Jet Streams
   polar front jets, subtropical jets

J) Global Wind System

K) Development of El Niño Event, La Niña Event