Group A
3.1 – 3.3

I. Inhalation of nanoparticles
   A. Nanoparticles exist in sprays
      1. air-fresheners sprays
      2. dyes and paints
      3. sprays for impregnating clothing or porous materials (wood or clay)
   B. Particles getting into pulmonary alveoli
      1. nonoparticles are absorbed by phagocytes
      2. a good number get can be deposited in lung tissue
      3. possible for nanoparticles to enter the blood stream
   C. The smaller the particle, the greater the reaction there is from the lungs
   D. Mechanisms responsible for behavior
      1. Surface reactivity of nanoparticles
         a. Can cause chemical damage to the surrounding tissue
         b. Reaction based on "free radicals" (like atoms in a constant excited state)
         c. Atoms that don't have enough or have to many electrons will give or take electrons from neighboring atoms, causing a chain reaction that can produce effects in the entire body
      2. Overloading of the phagocytes (which are responsible for eliminating nanoparticles)
   E. Nanoparticles in the lungs can transfer to the blood stream
      1. Just how this process works has not yet been definitively explained
      2. Inhaled nanoparticles are transported directly to the brain (what happens after that is still unknown)

II. Particle absorption through the skin
   A. In short, whether or not nanoparticle absorption through the skin is possible is unknown
   B. It is important to know more about the possibility of absorption, as there are many products on the market containing nanoparticles that are applied directly to skin.

III. Particle absorption through the alimentary canal
   A. Once swallowed, nanoparticles will reach the intestine
   B. The intestines immune defense system isn't effective against nanoparticles
   C. The nanoparticles are eventually absorbed into the bloodstream
      1. The smaller the particle, the deeper it penetrates
      2. 300nm can reach the bloodstream
      3. 100nm are absorbed in various tissues and organs
   D. Sources of ingested nanoparticles
      1. food and water
      2. dust from the atmosphere that settles on food
      3. traces of toothpaste that are swallowed
      4. new, improved dentistry tools