A. Definition of Needs and Requirements

I. The Box Kite
   a. A tailless kite in the form of a long box open at each end that is designed for stability. Small wings can be attached for further stability and a greater lifting force. The main features are the two long, straight spars running the full length of the kite, the diagonal braces which make the structure rigid, and the flat cloth sails that give the kite its ‘box’ appearance.
   b. The box kite comes in several different variations: Hargrave, Traditional, Cody, Triangular, Hexagonal, and Tetrahedral.
   c. The Cody Box Kite was used in World War II by the British Navy as observation platforms. An observer could even be lifted into the air and carried off the deck of a battleship.

II. The Sled Kite
   a. The sled kite consists of a uniform piece of material that is given its shape by two spars running the length of the kite. It also can have a tail hanging off the bottom end of each spar. Air pressure keeps the sails open and holds the kite’s shape while it flies.
   b. The sled kite is mostly used for recreation and is often used for fishing from on a boat and on a shore. The sled can also be used to raise heavy equipment up into the air.

III. The Diamond Kite
   a. A diamond-shaped kite that is often found with a tail. Two rods provide structural support for the thin material. The kites have a symmetrical design.
   b. The diamond kite was used in war to simulate airplane maneuvers to enhance training for aircraft gunners. Kites were also used for defense: they were flown into the path of oncoming bombers and acted as a flying obstacle.
   c. In medieval times, the kite was also flown to a target, and then the string length was used to give an accurate measurement of how far the catapult needed to fire.

IV. The Fishing Kite
   a. A kite similar in design to the diamond kite. It creates a lot of lift and is very stable.
   b. The fishing kite is used predominantly on islands in the Pacific Ocean. It allows fishermen to reach places boats are unable to travel and allows for a farther cast.
V. Paravanes

a. A winged object towed behind watercrafts. The paravanes have similar design qualities of air kites and they are symmetrical in one axis. They often orient themselves with respect to the water’s surface and can travel in two directions.

b. Paravanes were developed during World War II by the British. The kites would be towed behind ships to catch on underwater mines. The kite would either cut the rope towing the mine, allowing for it to be detonated remotely, or would crash into the mine, detonating it under the water.