

Some Thoughts on Age Appropriate Activities

K-2

- (1) Emphasis on visual and kinesthetic observations
- (2) General Terminology (Main parts of plane)
- (3) Recognition of differences between falling, non-powered gliding, powered flight
- (4) Identification of key components/functions of an airport
- (5) First exposure to form and function of shapes and surfaces supporting flight
- (6) Primitive design activities of planes (inquiry based)

3-5

- (1) Origins and functions of the four forces of flight
- (2) Review and add airplane terminology
- (3) Compare and contrast birds and man-made flying devices
- (4) Address historical development of flight (pre-powered to present)
- (5) Initial mathematical modeling of flight (velocity, mapping, numerical representation of forces)
- (6) Initiate experiments where numerical data is collected and displayed
- (7) Develop form and function of shapes and surfaces supporting flight.
- (8) Emphasis on application of knowledge in the design process
- (9) Introductory meteorological concepts and pre-flight operations.

6-9

- (1) Addition of instrumentation to airplane terminology
- (2) Reinforcement/development of four forces of flight
- (3) Moderate amounts of mathematical modeling of flight and data collection
- (4) Comprehensive display and interpretation of graphical data
- (5) Full development of meteorological implications on flight
 - Wind
 - Precipitation
 - Phase changes
 - Pressure issues
- (6) Additional deployment of mapping tasks.
- (7) Introduction to communication, air space concept, air traffic control
- (8) Reinforcement of pre-flight operations.

10-12

- (1) Full mathematical analyses of four forces of flight, including dynamic and kinematic descriptions
- (2) Full mapping capabilities, including flight planning
- (3) Review and reinforce the key parts, control surfaces, and instrumentation found in aircraft.
- (4) Mastery of Newton's 3rd Law and the Bernoulli Principle to explain lift
- (5) Explanation of the other possible dynamic situations, such as, rolls and stalls.
- (6) Provide opportunities for engineering challenges
- (7) Explain how various instruments work