East End Elementary School  
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1. Big Idea –
   - Students will construct kites in order to explore the concepts of gravity, direction, push and pull in relation to the mass of the object.
   - Students will create and test their own designs and determine which design is most effective.
   - Students will explore math concepts of measurement, angles, comparing whole numbers, addition, subtraction, geometry, graphing data.

2. Goals & Objectives –
   a. Math Processes: The student will understand and utilize the math processes of problem solving, reasoning and proof, communication, connections, and representation.
   b. Number and Operations: The student will demonstrate through the mathematical processes an understanding of the representation of whole numbers and fractional parts the addition and subtraction of whole numbers.
   c. Geometry: The student will demonstrate through the mathematical processes an understanding of the connection between the identification of basic attributes and the classification of two dimensional shapes.
   d. Measurement: The student will demonstrate through the mathematical processes an understanding length, time and weight; the relationships between systems of measure; and accurate, efficient, and generalizable methods of determining the perimeter.
   e. Scientific Inquiry: The will student will demonstrate an understanding of scientific inquiry, including the processes, skills, and mathematical thinking necessary to conduct a simple scientific investigation.
   f. Motion: The student will demonstrate an understanding of how motion is affected by a push or pull on an object.

3. Timeline –
   Third nine weeks as part of Motion and Sound
   Two week period prior to spring break
   a. Week One:
      i. Introduction: Pilot/airplane designer to speak to class.
      ii. Literature connection and research of kites, Wright Brothers and flight.
      iii. Teaching basic concepts of motion, gravity, push and pull, and direction.
      iv. Use research to determine design of kite, sketch kite, and give class report of various kites.
   b. Week Two:
      i. Create and test prototype
      ii. Refine sketch/model.
      iii. Create and make kite.
      iv. Test kite and communicate results.

4. Assessment –
   a. Daily journaling
b. Graphs of kite weights and flight  
c. Rubric of kite portfolio: perimeter, angles, sketches, prototype  
d. Final reflection paper including what was learned, what would could be changed, and amount of success  

5. **Resources** –  
a. Contact Just Fly for potential speaker  
b. Contact pilot to speak to class  
c. Ask for donations of supplies  
d. Materials  
   - Straws  
   - Popsicle sticks  
   - Glue  
   - String  
   - Ribbon  
   - Yarn  
   - Tissue paper  
   - Newsprint  
   - Small diameter dowels  
   - Tape measures  
   - Rulers  
   - Scissors  
   - Tape  
   - Miter saws  
   - Protractor  
   - Paint, markers  
   - General portfolio supplies  
   - Goggles  

6. **Learning Experiences** –  
a. Measures area and perimeter in metric  
b. Weigh in metric and customary (weight equivalences)  
c. Identify shape  
d. Experience gravity, and push and pull on an object  
e. Determine direction of flight  
f. Researching  
g. Speaking  
h. Organize information and data  
i. Test designs and graph data  
j. Guest speaker/explore careers  
k. Explore different designs of kites
7. **Example –**

- Analyze the kite design measuring the length and width to find the area and perimeter of the kite. The student would determine the shape of the kite and what kind of polygon.