Lesson: Go Fly a Kite

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Figure 1: Best Kite Clipart by Clipartion

Suggested Time: 60 minutes

Overview: Students will learn about balanced force before designing, building, and flying a kite.

Vocabulary:

- Balanced and Unbalanced Force
- Aerodynamics

- Lift, Drag, Weight, and Thrust
- Review – wind speed (anemometer) and wind direction (wind vane)

Objective:

Students will learn and apply basic concepts of force.

Students will design and build their own kite.

Standards :

NGSS: 3-PS2-1 Plan and conduct an investigation to provide the effects of balanced and unbalanced forces on the motion of an object.

3-PS2-2 Make observations and/or measurements of an object's motion to provide evidence that a pattern can be used to predict future motion.

SEP: 3.S.1A.2 Develop and use models to (1) understand or represent phenomena, processes, and relationships, (2) test devices or solutions, or (3) communicate ideas to others.

3.S.1A.6 Construct explanations of phenomena using (1) scientific evidence and models, (2) conclusions from scientific investigations, (3) predictions based on observations and measurements, or (4) data communicated in graphs, tables, or diagrams.

Materials:

- Assortment of Paper (tissue, construction, plastic, cardstock, etc.)
- Assortment of Weights (wooden rods, craft sticks, straws, Chenille sticks, etc.)
- Assortment of String Material
- Scissors, Tape, Glue

Multimedia Resources:

"The Science of Flying a Kite" by Ashish. www.scienceabc.com

Before the Lesson/Background Information:

Students have studied and measured wind speed and direction as well as had lessons on force and recycling. This lesson is in the middle of the force unit.

The Lesson:

- Read book, *Have Fun Molly Lou Melon* , by Patty Lovell (imagination to make toys out of recycled materials)
- Show a kite to students. "It would be more fun if we had a kite for everyone to go outside and play with." Refer back to book's message of using everyday materials to make toys and inform students they will design and build their own kite to fly.
- Teacher will introduce aerodynamic force (lift, drag, weight, thrust, and shape). Emphasize that these forces need to maintain balance for a kite to fly.
- Students will look at the materials available to them and design their kite on graph paper before building it.
- Students will fly their kite and modify kite as needed.
- Students will add notes about force and wind on the same paper as their kite design.

Extension: Students will write a How To Fly a Kite pamphlet to explain the science of flying kites to hand out to students of other grade levels.