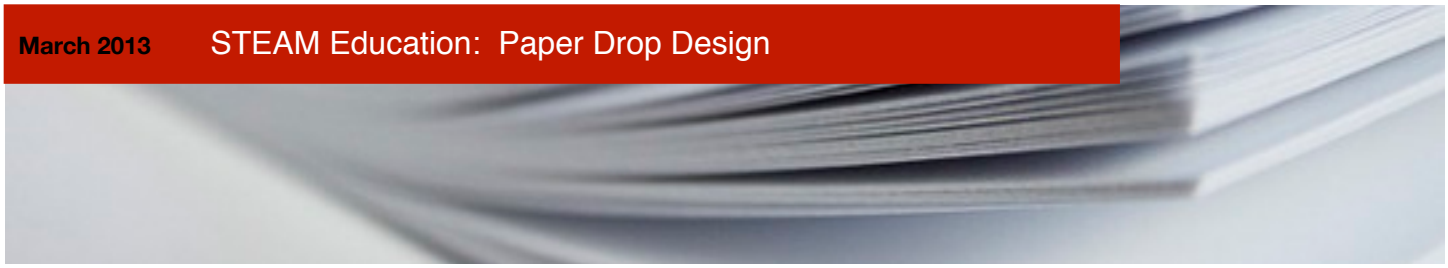

Summary:

Using paper, paper clips and tape, student teams design flying devices to (1) stay in the air as long as possible and (2) land as close as possible to a given target. Student teams will use the engineering design process to guide them through the initial conception, evaluation, testing and re-design stages. The activity culminates with a classroom competition and scoring to determine how each team's design performed.

Materials List:

3 sheets of paper
2 in. of Tape
Ruler
Scissors
1 index card
3 Paper Clips

Learning Objectives:

After this lesson, students should be able to:

- Design and construct a flying device that meets specific requirements
- Describe the components of the engineering design process and cite specific examples of each component
- Describe how they evaluated design trade-offs in the creation of the device.

Procedure:

One member of each team will go to the takeoff point and drop the device over a target on the floor. The time will be recorded from when the device is dropped until it hits the ground. Then the distance will be measured from the device to the target. Each team will perform two drop runs, and the teams may modify their devices between runs. Any changes should be documented by the student teams. The times and distances will be analyzed for each team

The most common approach is for teams to drop devices directly above a target on the floor; however, it should be stated that teams do not have to start directly above the target. Teams may seek to increase the flying time by beginning somewhere other than directly above the target.

Plan:

On the back of this sheet you should brainstorm ideas BEFORE you begin to use your materials. On the next sheet you should fill out the form and draw your final designs.

Fill out this form throughout the design process:

1. Define The Problem:

2. Explore Possible Solutions:

3. Act On The Best Solution:

4: Look Back and Evaluate: