



Curriculum Units by Fellows of the Yale-New Haven Teachers Institute
1988 Volume VI: An Introduction to Aerodynamics

Paper Airplanes

Guide for Curriculum Unit 88.06.02
by John P. Crotty

This unit on paper airplanes is intended for teachers who enjoy being teachers. It is for teachers who are not afraid to have fun with their students, who enjoy a classroom with a high energy level, who feel that a pleasant atmosphere can also be academic. It is for teachers who are looking for different motivations to add to their teaching repertoire.

From the beginning of time, man has been interested in flying through the sky. Ancient religions made the heavens the realm of their gods. The gods did not suffer our limitations of being restricted to the earth. Man looked to the birds and saw freedom. Where we plodded, the birds soared. Paper airplanes offer students the opportunity to step back from daily routines and pressures and enter the fanciful world of flight.

This is the third unit I have written for the Yale-New Haven Teachers Institute which uses elements from the child's everyday environment. I strongly believe in using data or examples which are drawn from the student's life experiences. My contention is that even if there was nothing special in paper airplanes, the fact that everyone has at sometime made a paper airplane is reason enough to study them. When a child brings past experiences to the learning process, he is able to build on and go beyond himself.

Every child in the class can partake in a project involving paper airplanes. Some students will transform every sheet of paper in sight into flying entities; other students will take charge and be the judges; the poets can write poems; the artists can draw pictures. Every student will have the opportunity to feel good about himself.

The unit has five main parts. The first part is the introduction in which I show the universal appeal of paper planes by discussing two international paper plane contests. The second part deals with why airplanes fly. I examine the properties of air and the atmosphere culminating with Bernoulli's Postulate which states that as the speed of a fluid increases, the pressure of the air it occupies decreases. This leads into a discussion of the forces that act on a plane in flight—lift, drag, thrust, and weight. In the third part, I discuss paper airplane design. I mention the Kline-Fogleman airfoil, a paper plane that has been awarded a patent. The fourth part is about aerobies, a flying ring with amazing flight capabilities. The unit concludes with two design patterns; one for a plane that travels a long distance, the other for a plane that remains aloft a long time.

I hope that you will find this unit useful in your teaching career. At the very least, treat yourself to one of the books listed in the bibliography. In addition to increasing your knowledge, you'll have hours of fun making and flying the paper airplanes that the book describes.

(Recommended for General Science classes, grades 7-9; Physics classes, grade 12; Statistics classes, grade 12; and Applied Math classes grade 9.)

Key Words

Aviation Safety Career Training Basic Aerodynamics Science

<https://teachersinstitute.yale.edu>

©2019 by the Yale-New Haven Teachers Institute, Yale University

For terms of use visit <https://teachersinstitute.yale.edu/terms>