



Fan Copter Lesson Summary



Intended Audience: What age group is this project targeted towards?

- This project is intended toward students in grades 1st – 6th

Time Estimate:

- The time required for this project is approximately 45 – 60 minutes.

Prior Knowledge Required:

- Students do not need any prior knowledge for this project.

Learning Standards:

- This lesson satisfies the following Illinois State Learning Standards:

Science

- Science as Inquiry (State Goal 11)
- Physical Science
- Position and Motion of Objects Science and Technology

Science Process Skills

- Observing
- Making Models Controlling Variables

Objectives:

Topics intended to be taught:

- 1.) Basic Aerodynamics
- 2.) Air Resistance
- 3.) Gravity
- 4.) Pressure
- 5.) Design of the fan copters

Agenda:

- 1.) Short, introductory lecture on what makes things fly (10-15 minutes)
- 2.) Demonstration of pre made fan copters by instructors (1 minute)
- 3.) Pass out paper cut outs to students so they can build and color their own fan copter (15 minutes)



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- 4.) Allow students to test their fan copters and determine which way they will spin and to see if they will float (10 minutes)
- 5.) Friendly competition to see which student can make their helicopter fly the longest (10 minutes)
- 6.) Follow Up/Question and Answer Session (5 minutes)

Intended Results:

- The intended result is to help students understand why the helicopter rotates the way it does. Additionally, students can learn very basic design principles on adjusting the simple paper helicopters for various results.
- Another intended result is to potentially spark interest in students to pursue various aerospace related topics later on in life.

Future Learning:

- A possible research tool for students could be <https://YouTube.com> to see videos demonstrating various other basic aerodynamic principles
- Examples of these principles could be fixed wing flight as opposed to rotor flight, and applications of wind turbines.