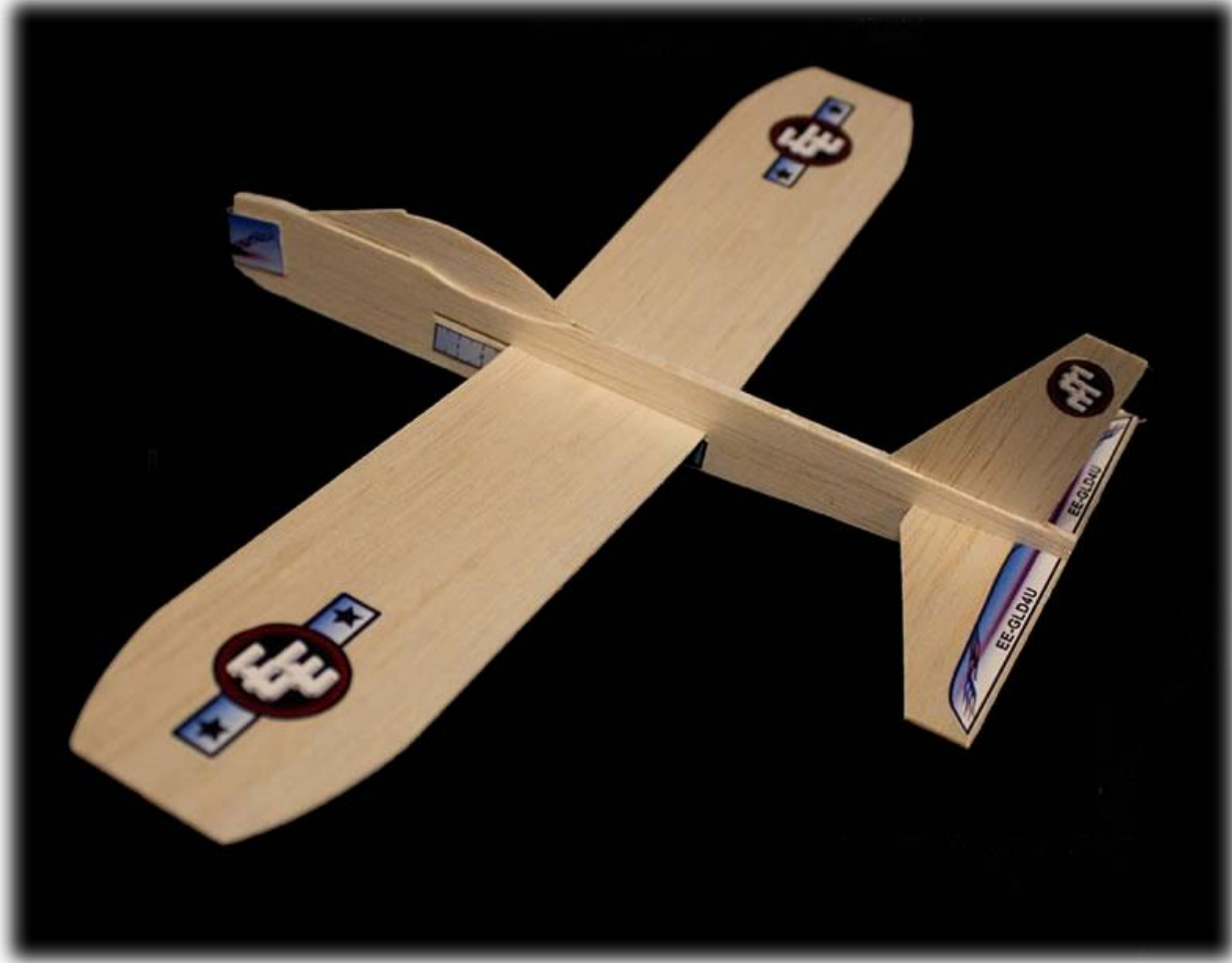


With the advanced version, the student builds all of the projects in the standard version (included with this course) plus three more. These projects are specifically designed to allow the student to apply in a hands-on manner the more advanced lessons they are learning. The student uses the ten projects in the majority of experiments/activities.



#### **GLIDER**

Examples of some of the topics this project is used to study are:

- Bernoulli's principle
- Distance vs displacement
- Glide ratio
- Thermals
- Fluid dynamics
- Graphing analysis
- Experiment constants and variables
- Mechanical bonds
- Bernoulli's principle



### **STEAMBOAT**

Examples of some of the topics this project is used to study are:

- Thermodynamics
- Change of phase
- Radiant heat
- Thermal energy
- Buoyancy
- Density
- Heat engines
- Joules
- Kelvin
- Flash point



### **MINI-HOUSE**

Examples of some of the topics this project is used to study are:

- Ohm's law
- Light emitting diodes
- Circuits
- Electrical engineering
- Static electricity
- Acoustics
- Solar system and seasons
- Lumens
- House wiring
- Electrolytes and ions



### **ELECTRIC RACER**

Examples of some of the topics this project is used to study are:

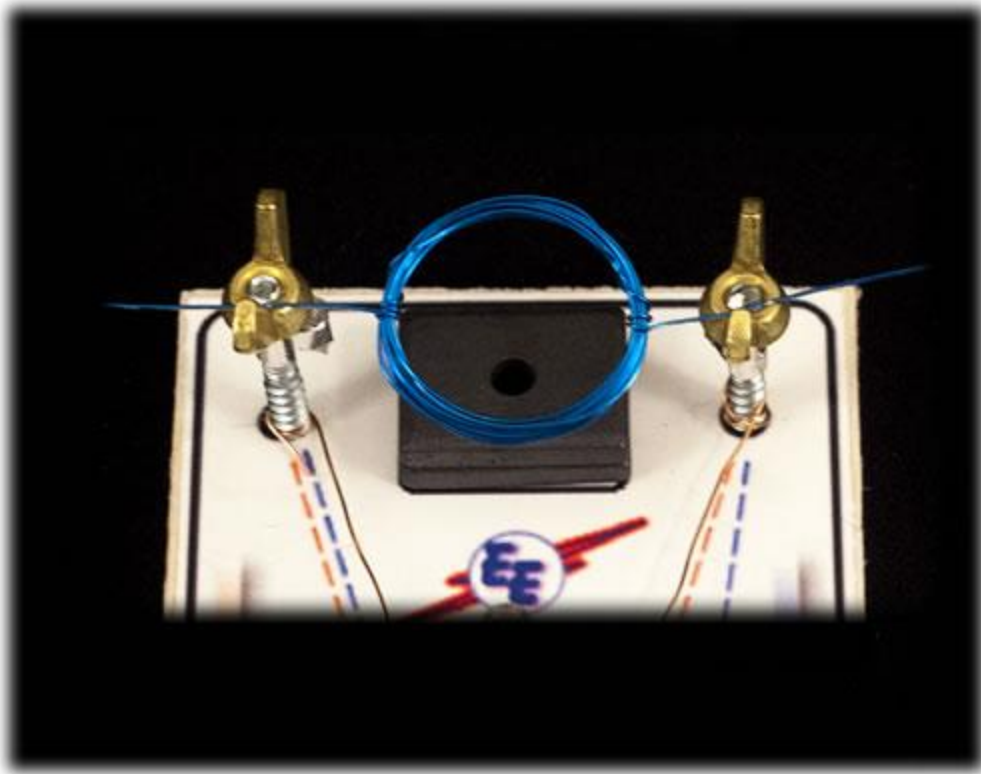
- Friction
- Displacement
- Centripetal Force
- Work
- Pulley ratios
- Power
- Inertia
- Newton's three laws of motion
- Speed & Velocity



## **CIRCUIT**

Examples of some of the topics this project is used to study are:

- Parallel and series circuits
- Switches
- Conductors
- Insulators
- Resistors
- Open and closed circuits
- Voltage
- Batteries
- Electrical currents
- Apparatus testing



## **MOTOR**

Examples of some of the topics this project is used to study are:

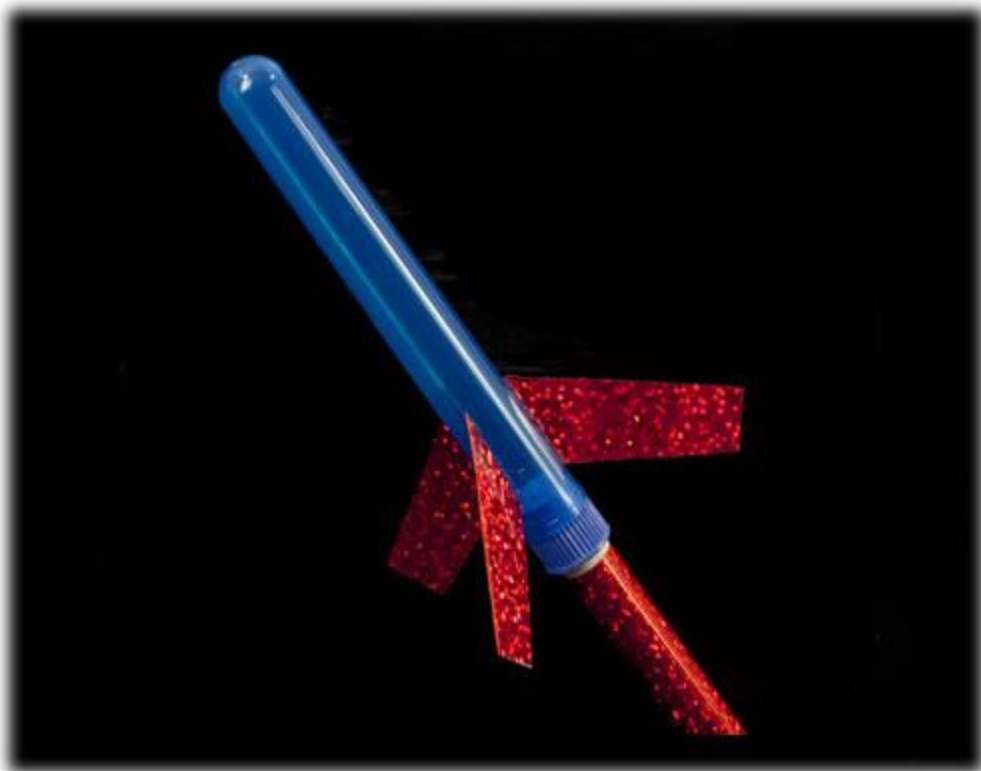
- Motors
- Generators
- Magnetic Fields
- Electromagnetism
- Electrons
- Polarity
- Windings
- Armatures/brushes
- Fixed magnets
- DC current



### **BALANCE SCALE**

Examples of some of the topics this project is used to study are:

- Mass
- Elements
- Salts
- Chemical bonds
- Conservation of matter
- Chemical reactions
- Mixtures
- Crystals



### **ROCKET**

Examples of some of the topics this project is used to study are:

- Chemical reactions
- Rocketry
- Variables and constants in experiments
- Products of chemical reactions
- Endothermic
- Exothermic



### **UNO-GUITAR**

Examples of some of the topics this project is used to study are:

- Sound energy
- Echoes
- Absorption
- Pitch
- Tone
- Sound waves
- Sound mediums
- Vibration



## **SOLAR FAN**

Examples of some of the topics this project is used to study are:

- Light sources
- Scattering light
- Shadows
- Reflection
- Refraction
- Radiant light
- Photons
- Transparent, translucent, opaque