

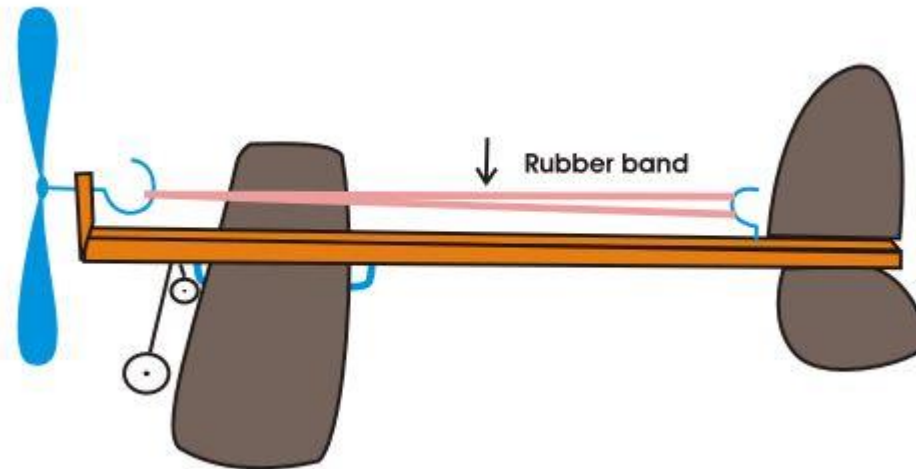


ASSIGNMENT

DACS 1232

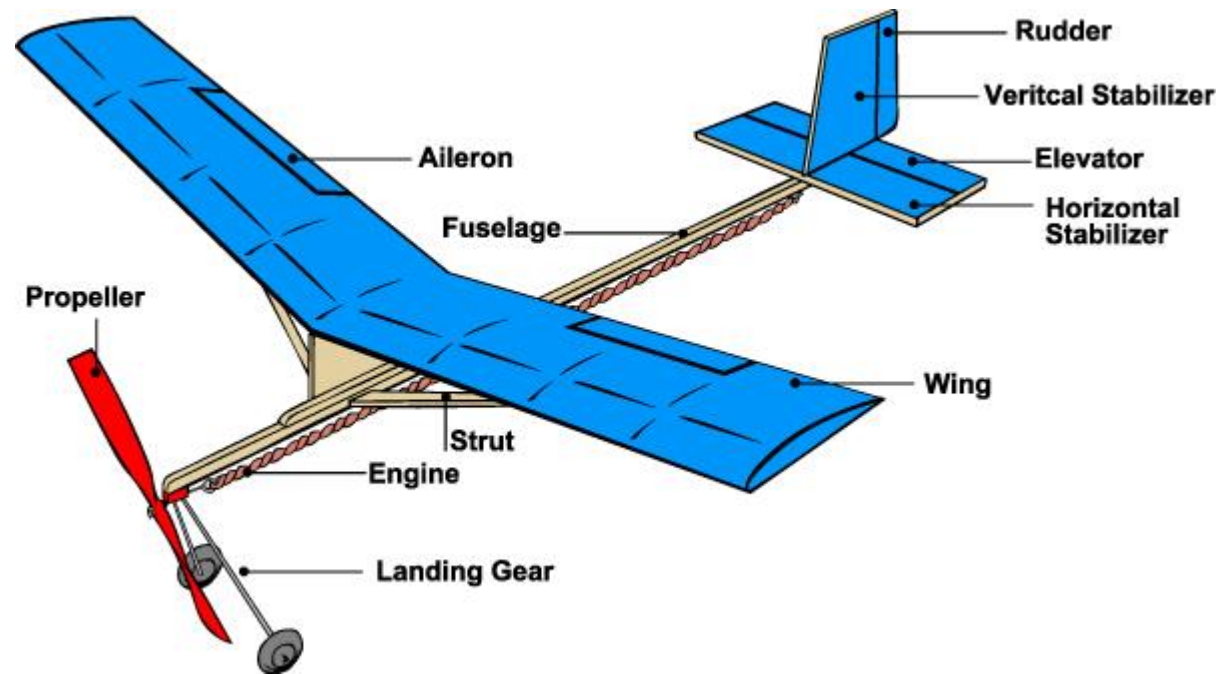
ASSIGNMENT
DACS 1232 – CHEMISTRY
SEMESTER II 2015/2016

“RUBBER BAND POWERED AIRPLANE”



TASK

Develop a mini airplane powered by rubber band.
Make a short video (± 2 min) and post it on youtube. Format: MP4, min 720p (HD).



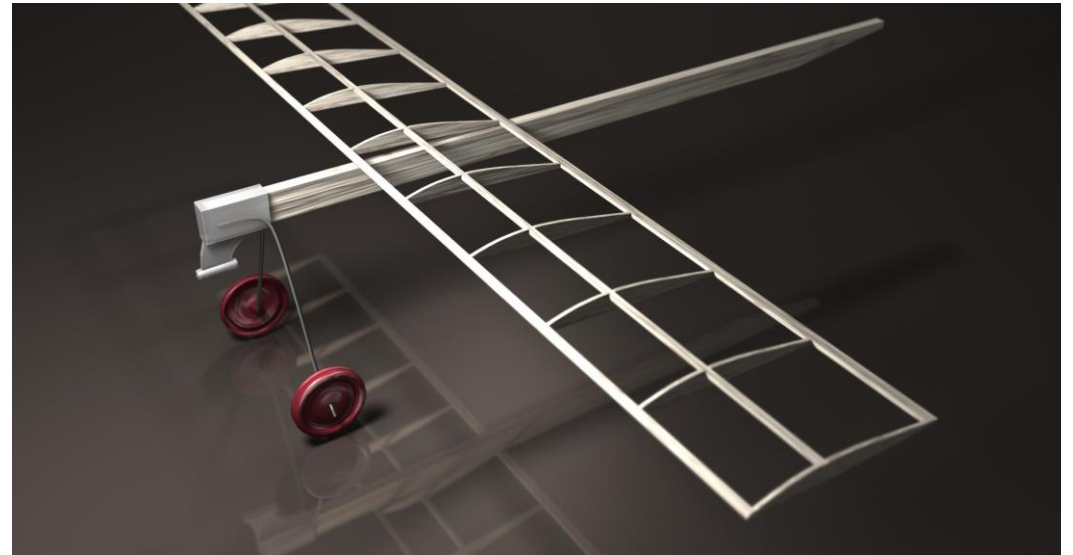
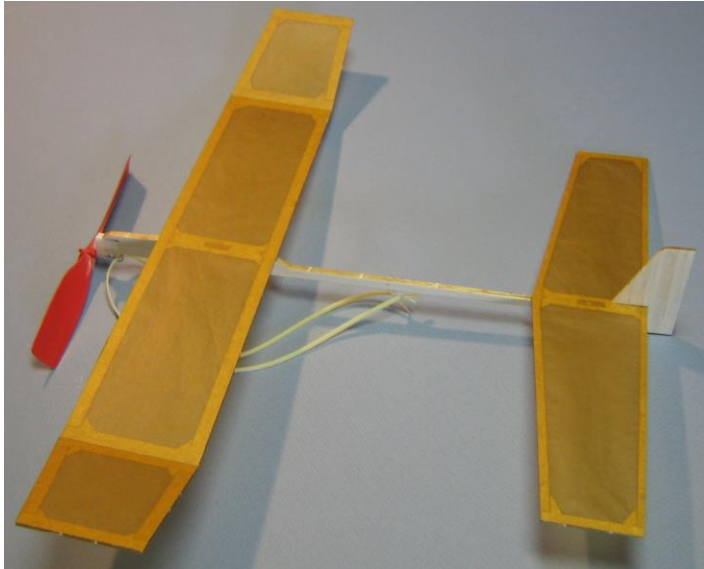
MATERIALS

Vehicle body must be made by using at least 80% of waste materials (Eg. plastic, paper, etc).

The design's concept is based on your own creativity.

Minimum size of the airplane (30 cm Length, 30 cm Width).





Genuine Squirrel Airplane Kit

Designed by Inventor Darcy Whyte



High Performance Rubber Band Flyer

Number one choice for beginners and experts the world over in recreational and academic environments. Experience the marvel of flight hands-on by making and flying a simple model airplane kit!

Attention Beginners!

On-line Video Instruction

Requires:
Scissors
Craft Glue
Glue Stick



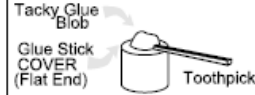
Video Instruction at rubber-power.com.

Email questions, photos, reports to darcy@siteware.com.

Supplies: Scissors, Glue Stick (optional), Craft Glue (Aleene's Tacky Glue or any carpenter or white glue). Also a pair of running shoes and a large field or gym is helpful!

Craft Glue: Apply with a toothpick spreading a thin layer quickly. Less is more.

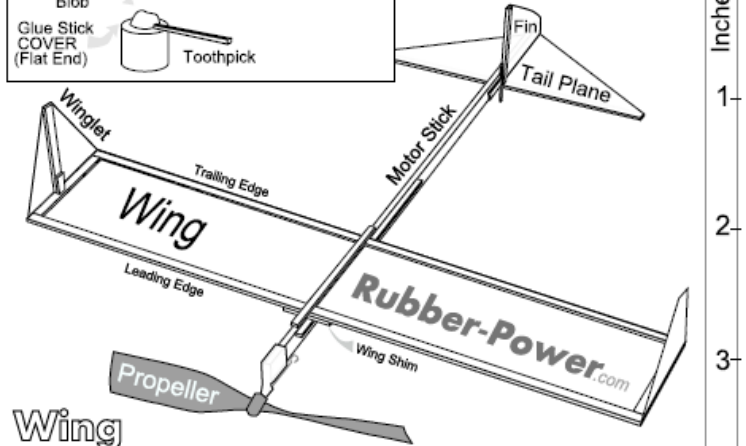
Keep a blob of glue on the flat end of a glue stick cover. Pick up glue with toothpick to apply to model.



Safety: Children need supervision. Do not chase plane onto or near roadway or other dangerous places. Do not climb trees, buildings, posts or any structure. Do not put parts in mouth. Choking hazard. Keep propeller away from eyes.

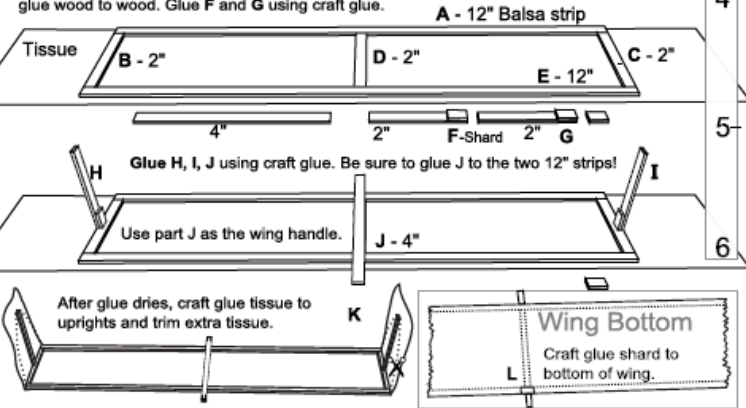
Glue Stick: Place balsa against table while applying glue stick.

Included: 1/16 x 3/16" Balsa Strips: 2-12", 2-6", 6-2", 1-4", 4-1/2", 1/8 x 3/8 x 12" Motor Stick, Toothpick, Propeller with mount (6"), 10" Elastic Motor Loop (1/8" rubber), #8 Elastic Band, Tissue Paper 2-17x2.5"



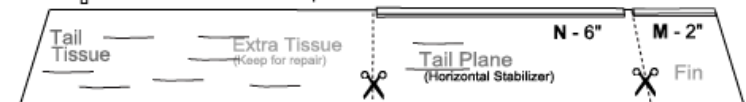
Wing

For step A glue stick the balsa to the tissue centered roughly from right to left. For steps B through E, apply glue stick to the bottom of the strips to stick to tissue and add craft glue to glue wood to wood. Glue F and G using craft glue.



Tailplanes

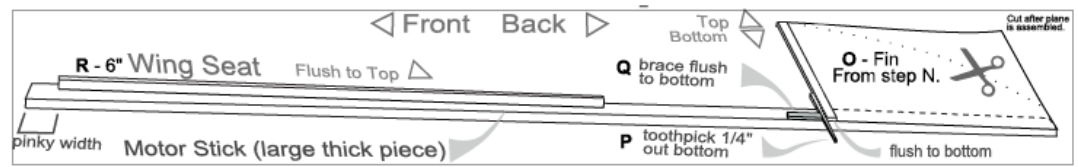
The rest of the model is craft glue only. Glue M and N to tissue. Snip off Fin and Tailplane on the dotted line with scissors.



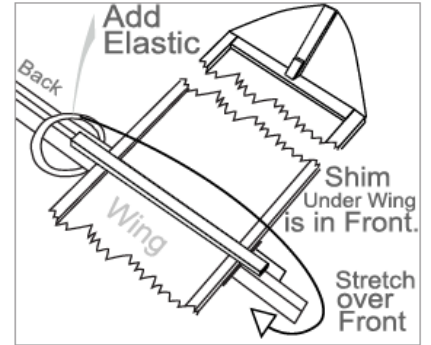
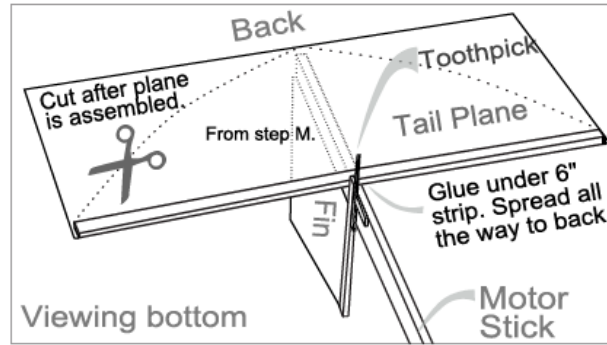
Video Instruction at rubber-power.com. Email questions, photos, reports to darcy@siteware.com.

Motorstick

The Motorstick is the thicker 12" strip. Glue O, P, Q, R to make the Motorstick



Glue Tailplane to Motorstick. It's important to set the Motorstick on the edge of the table or on a glass so that the Tailplane does not get contacted by anything while drying. Make sure the 6" balsa Wing Seat is nice and square against the Motorstick. Wait for all the glue to dry. Trim extra tissue using scissors on the wing and tailplanes. Attach wing with small elastic. Pre-stretch the elastic to soften it. Strap the wing on the top of the Motorstick. Move wing carefully so it's about 1 1/4" from the front.



Motor & Propeller

Tie 20" (45cm) elastic into a loop using square knot. Loop to metal hook at back of propeller. The knot goes furthest from propeller. Mount propeller on motor stick. Prop. shaft below motor stick. Large elastic will hang down after you attach the propeller to the front of the plane.

Admire your work!

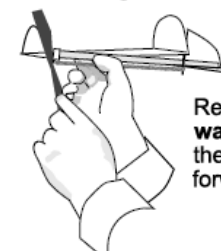
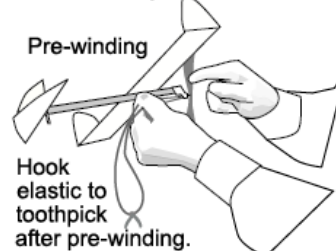
Pictures - Submit pictures to Web site and share with friends. Wait for glue to dry!

Flying

Handling - Pick up a Squirrel by nose. When retrieving from bushes or other predicaments, move slowly and carefully. Store in small box with wing removed or larger box with wing installed. Avoid water or moisture.

Winding - Wind propeller clockwise from front. If elastic is too long to hook on toothpick pre-wind it the diagram below shows. Then hook the elastic on the toothpick. You will need about 150-200 turns for test flights and 300 turns for regular flying. Be careful, too many turns and the elastic can break causing damage.

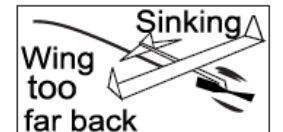
Always wind and launch the plane while holding it underneath the wing.



Release propeller, wait one second then push plane forward gently.

Tips

- Flies best with little or no wind.
- Write your name and phone number on your Squirrel.
- Add tick marks to motor stick to note wing position once wing is adjusted.
- Decorate your Squirrel with different colored tissue, markers and ink stamping.
- Attach paper aileron to rear of either wing for turning. Also can attach paper rudder to leading edge of fin.



Broken Sticks - Glue back with craft glue. Be sure to match the break back up exactly so that the wood grain is perfectly matched back. Use scrap balsa to split break if necessary.

Torn Tissue - Make a patch out of tissue and glue it on. You can also replace sections of tissue or all the tissue.



MARKS

Video (Informative, Attractive) = 10 marks

Airplane design (Creativity, Originality, Conceptual design) = 10 marks

Airplane functionality = 10 marks

Time	Marks
Failed to fly	0
Fly > 5 seconds	2
Fly > 10 seconds	4
Fly > 15 seconds	6
Fly > 20 seconds	8
Fly > 25 seconds	10

Total = 30 marks

Bonus:

Best Flying Time: 2 marks

Best Design: 2 marks

Best Video: 2 marks

