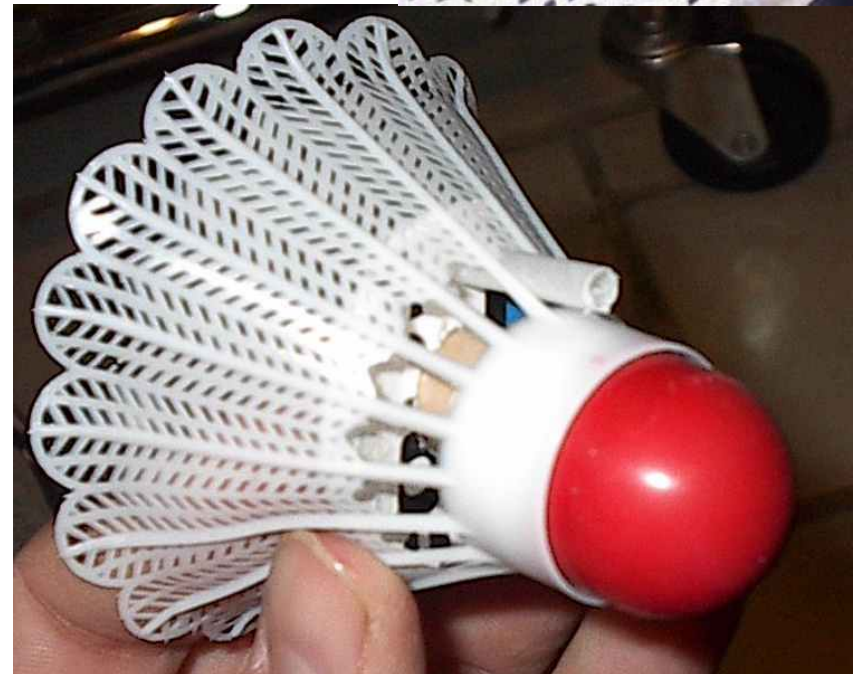
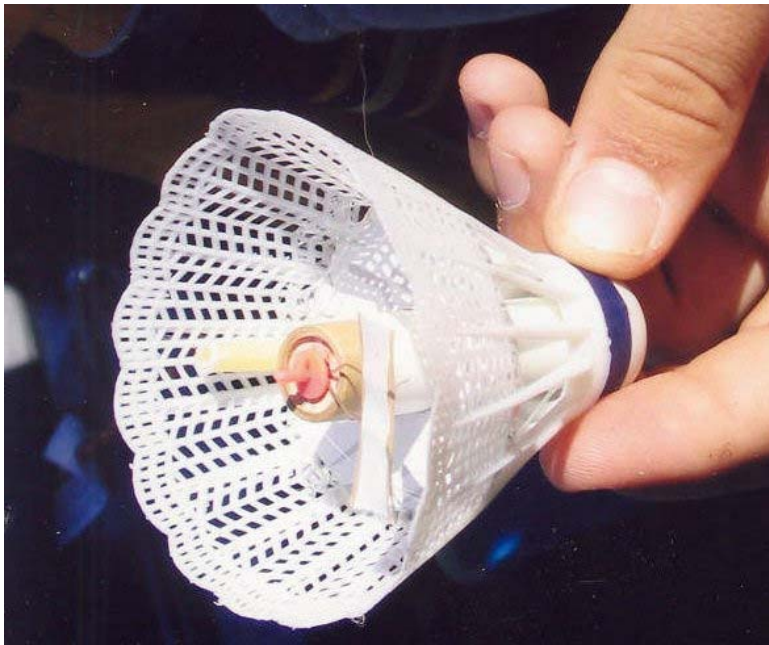


Building a Birdie Rocket

Low Cost – Easy to Build – Fun to Launch
A GREAT alternative for large groups

www.bsarocketry.org



Cub Scout Model Rocket Safety Promise

(modified version of the National Association of Rocketry Safety Code)

I PROMISE TO:

- Always have an adult supervising me when building, launching and recovering my model rocket
- Never handle or attempt to load a model rocket motor. I know that these motors can be dangerous and may hurt me and other people near me.
- Always pay attention to the launch area during all model rocket launches.
- Never enter the launch/recovery safety area when rockets are being launched
- Always wait for permission from an adult to recover any rocket from the recovery area. I will always proceed carefully to the rocket with an adult watching.
- I understand that if I fail to keep the above promise, I will not be allowed to participate.

Name	Den and Pack

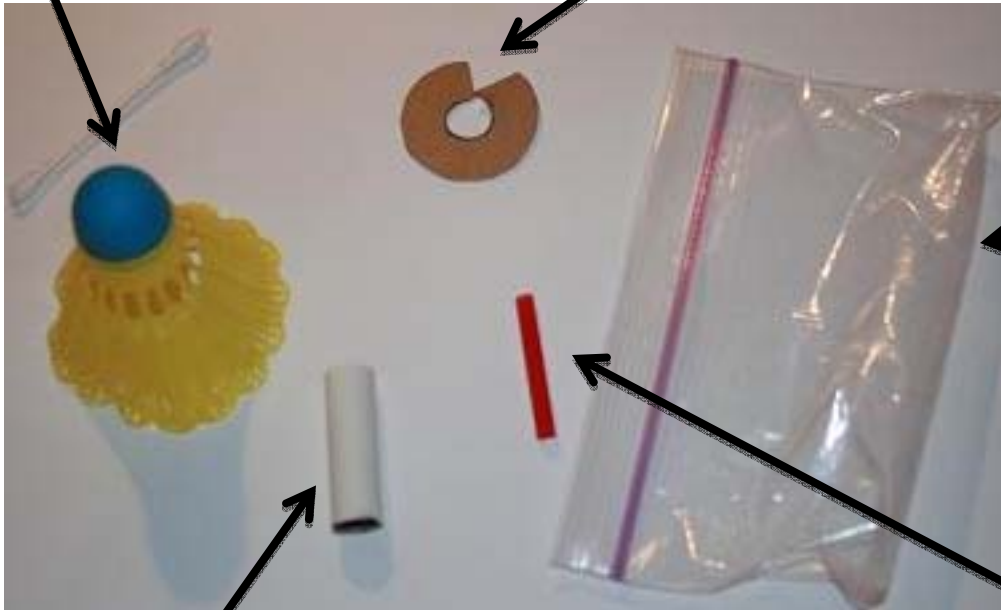
Overview

- Cost of materials
 - \$0.50 for the birdie rocket
 - \$1.50 for the A10-3T motor
- Time to build – Approximately 45 minutes
- Complexity – Requires a low-temp glue gun
- Launch location – Only needs about 100 feet of open area
- Safety – No wooden or metal parts
- Easy to fly, even in high winds

The Birdie Rocket Kit

Birdie Shuttlecock

Cardboard Centering ring
(soda 12-pk carton)
1.75" diameter



Ziplock snack bag

Airframe Tube 13/18 (Estes BT-5 size)

http://www.apogeerockets.com/body_tubes.asp

Plastic drinking straw 1.75"
(from McAllisters Deli)

Ingenious Aerospace Design

Pack of 6 - \$1.38 at Walmart

Fancy Colors

High Drag Design

No chute or streamer needed

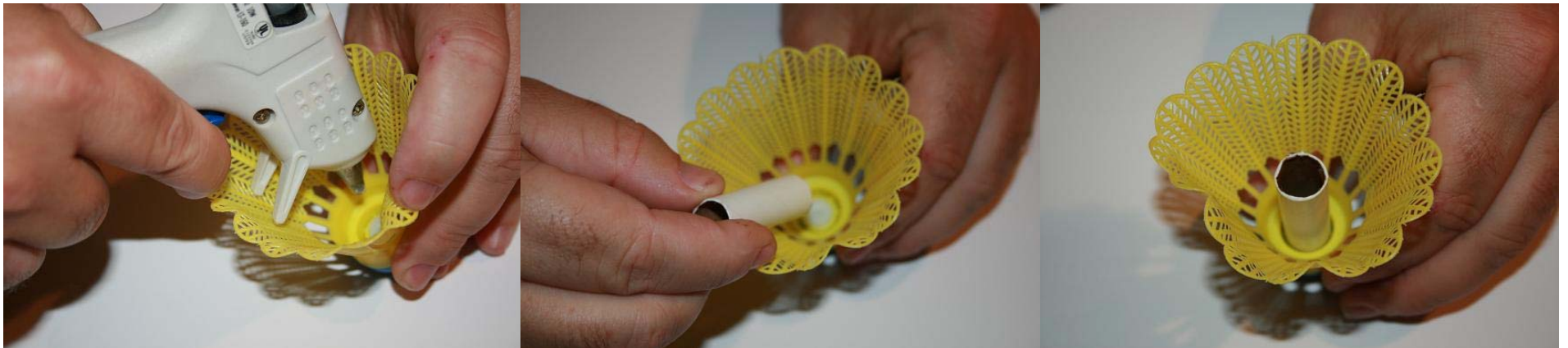


Building a Birdie rocket

- How to turn an ordinary badminton birdie into a real launchable rocket. These are easy to make and very fun to fly, plus they don't go so high that you'll lose it.
- **Tools**
 - Scissors (for trimming Cardboard centering ring)
 - Low-temp, Hot Glue Gun (one of the cheap ones)
 - Birdie Rocket kit (Zip lock baggie)

Installing the motor Mount

- *Motor Mount Tube* – From the kit, remove the birdie and tube.
- Holding the birdie upside down so you are looking “inside”, use the hot glue gun to cover the inside, bottom of the birdie nose with hot glue.
- Quickly insert the tube and line it up so that it is centered vertically. Glue should solidify in 30-60 seconds



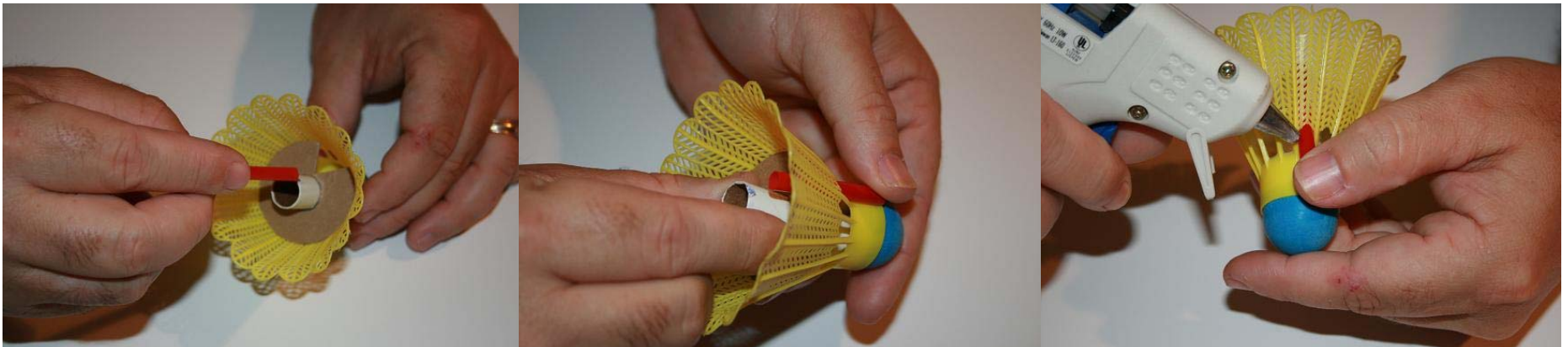
Install the Centering Ring

- Remove the flat circular ring of cardboard from your kit
- Fit the centering ring into the bottom of the birdie and then slide the motor tube into place until cardboard touches all sides of the birdie.
- Make sure the slot lines up with the launch lug (straw) so there are no obstructions.
- Hot glue the motor tube to the centering ring with a bead of glue where the two pieces meet. Hold the cardboard in place until the glue cools.
- Once cool to the touch, apply another bead of hot glue to edges of the cardboard where it touches the mesh web of the birdie. Do this all the way around.

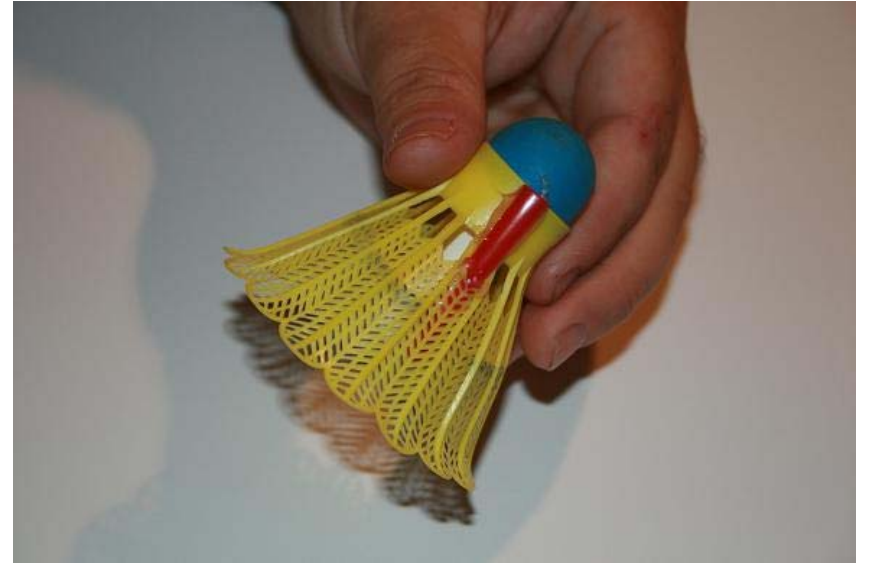


Next is the Launch Lug

- Take the straw from the kit and insert it through one of the larger holes on the top of the birdie (just below the solid plastic lip)
- Line up the end of the straw with the top of the lip area and “Carefully hot glue it to the birdie - ** make sure to keep the tube lined up with the hole to make it perfectly vertical
- Add some additional Hot Glue to the tube where it goes through the hole in the birdie



Final Views – Ready to fly!



Don't forget to Decorate

- Paint Pens
- Sharpies
- GLITTER (Yes – Disco Birdie!)

- Decorating can keep the early finishers busy while the rest of the group catches up.

Launch Time!

- Younger cubs should not handle Hot Glue guns
- You can use any standard Model Rocket Launch Pad and Launch controller (Estes and Quest work great!)
- Preferred Motor – Estes A10-3T

