

# Checklists

(courtesy of <http://my.execpc.com/~culp/space/launch.html>)

## Checklist 1: What to Bring...

1. Your Rocket
2. Launch Pad & Ignition System
3. Rocket Motors
4. Igniters
5. Recovery Wadding
6. Altitude Tracker
7. Your Field Box

Also, it would be a good idea for the group to bring

- A folding card table or picnic table for rocket prep
- Trash Bags: try to leave your launch field cleaner than you found it.
- First Aid Kit: be prepared.
- A fly or tarp set up as a lean-to to protect the rocket prep area from the wind and/or sun.

## Checklist 2: What to Put in Your Field Box

At least this is what I have in my field box...

1. **Swiss Army Knife:** for all kinds of things
2. **A pair of slip-jaw pliers:** for getting motors out of rocket - some rockets require these for getting the motors INTO the rocket as well, but for almost any rocket they come in handy.
3. **A modeling knife:** for those unexpected precision cutting & trimming jobs.
4. **Baby powder:** for powdering the parachute to make sure it deploys properly and doesn't stick.
5. **Extra Igniters (12 of them)**
6. **Extra Wadding (two packs)**
7. **Clothespins:** for all kinds of things
8. **Tape measure:** I use a 25-footer to mark off the distance for altitude trackers. Two people can take the tape at each end and mark off 200-300 feet, 25 feet at a time.
9. **Stopwatch:** for timing flights, countdowns, and 60-second wait periods on misfires
10. **Sandpaper:** also for helping motors into the rocket
11. **Superglue:** for those fins occasionally dislodged by a sudden stop at the ground
12. **Masking tape:** good for shimming parts to fit tighter, also good for taping on the launch rod like a little flag to hold the rocket up off the pad (to avoid Bernoulli Lock). You can use the clothespins for this; I use standoffs of various types for this.
13. **Cellophane tape (Scotch tape):** for taping two-stage motors (booster & upper stage) together.
14. **Electrical tape:** I use this to hold the film door securely on my Astrocam.
15. **Straws:** for replacing lost launch lugs
16. **Extra shock cord**
17. **String**
18. **Rubber bands**
19. **Watercolor brush:** I use this for cleaning the mirror on my Astrocam.
20. **Sun Block:** time flies when you're having fun - before you know it, you're a crispy critter.

...and also bring a baseball cap to keep the sun out of your eyes.

I've discovered that sunglasses are a great thing to have for tracking rockets against a bright sky.

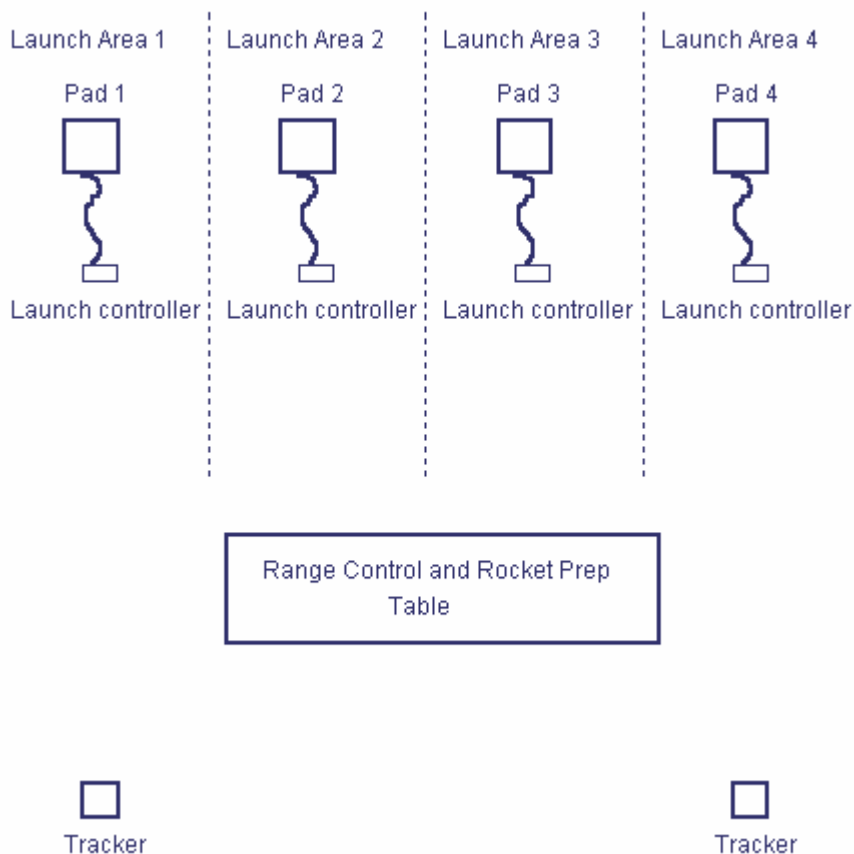
## Checklist 3: Rocket Launch...

1. Rocket inspected by **Range Control Officer (RCO)**
2. Place rocket on launch rod
3. Verify launcher is DISARMED
4. Attach alligator clips to igniter leads
5. Inform others that rocket is ready for launch. Check with RCO for permission to launch
  - RCO: "Next rocket to go is from launch area number \_\_\_\_\_. Skies are clear. Tracker(s) ready? "
  - Trackers: "Ready"
  - RCO: "Is everyone on the range watching?"
  - Rocketeers: "WATCHING"
  - RCO (after verifying that all eyes are on the launch): "Range is go."
  - You now may arm your launch controller
  - RCO: "Time is running at T-minus 5... 4... 3... 2... 1... START"
  - RCO: "Model is coming up on peak. MARK" (this is the point that altitude is taken)
  - RCO: "Recovery system is deployed. Descent looks good. Trackers, angles please."
  - Trackers report altitude angle measurements

## Checklist 4: Rules of the Range

1. During the countdown if something goes wrong anyone on the range may yell "HOLD" and the RCO will stop the countdown immediately.
2. During any terminal countdown stop what you're doing and watch the model being launched. Keep your eyes on it until you know that the flight is going well and where the model is going to land.
3. IF THE ROCKET MISFIRES: start a timer and wait 60 seconds before allowing anyone to approach the launch pad. On our first outing we had a misfire which then launched 5 seconds into our 60 second wait period. This is an important rule.
4. Don't engage in horseplay or practical jokes on the range at any time, and don't let others do it either.
5. Don't recover someone else's model unless you are asked to do so.
6. Don't walk across launch areas - stay between them or within one so you don't trip over controller cables.

### Range layout



## Checklist 5: Who to Bring...

I recommend three adults with a group of ten or so scouts:

- Adult #1: Range Control Officer
- Adult #2: Range Technical Support - helps scouts with their rocket prep
- Adult #3: Altitude Tracking - helps scouts on altitude tracking stations

One of the adults should also keep a flight log for the session. This helps later in putting together the launch report for the troop, and for determining awards for the rocketeers. For each flight, note the following points (you'll be happy you did)

1. Rocketeer
2. Rocket
3. Motor Type/Pad Number
4. Tracker Angle
5. Altitude (computed from tracker angle)
6. Recovery Device Operation
7. Performance Comments
8. Condition After Recovery

Be sure to visit <http://my.execpc.com/~culp/space/space.html>

### Questions

Your questions and comments regarding these pages are welcome. You can e-mail Randy Culp for inquiries, suggestions, new ideas or just to chat. (<mailto:culp@execpc.com>)

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