

## Why Protect your Battery Packs?

The 4 AA batteries used in the SpaceDough activities contain enough current to melt the plastic battery holder if the positive and negative leads touch each other.

A current-limiting resistor added to one of the leads prevents too much current from flowing, making your battery packs much safer. Basic soldering skills are enough to complete this task.

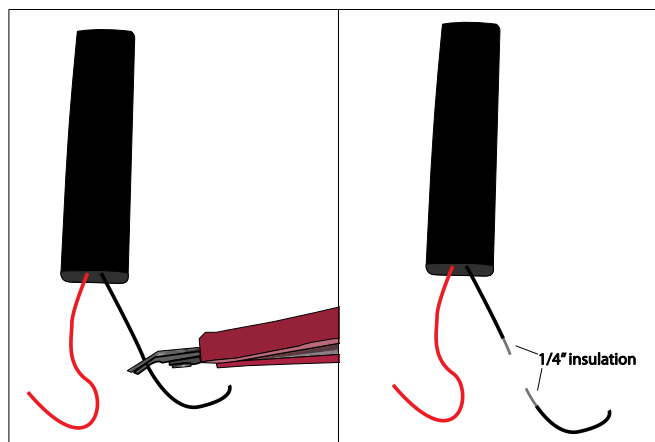
### Tools and Materials

- 6 volt battery holders with wire leads (to hold 4 AA cells each)
- Resistors, one per battery pack (approximately 100 ohm)
- Heat-shrink tubing to fit over resistor (3mm diameter, 1" of tubing per pack)
- Soldering iron and solder
- Wire strippers and wire snips
- Heat gun (optional)

**Time: 2-5 minutes per pack**

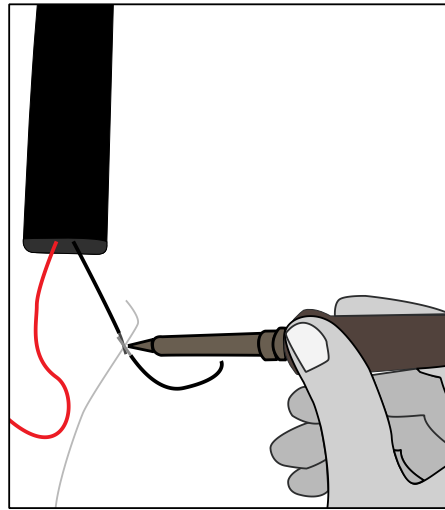
## Adding Resistors

1. Cut the negative lead into two about  $\frac{1}{4}$ " of each piece.



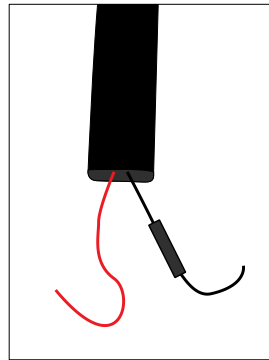
(black) battery pieces and strip insulation from

2. Solder one lead of the black lead and trim the



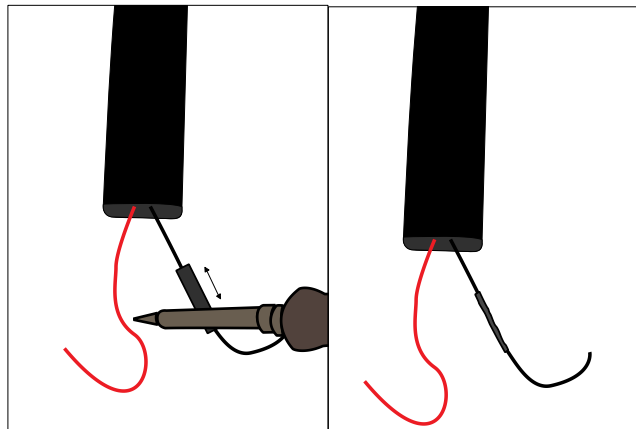
resistor to each piece of the ends.

3. Cut a piece of heat-shrink solder joints and the resistor,



tubing long enough to cover both and slide it over the lead.

4. Use the thick part (not the tip) or a heat tubing until it shrinks joint.



of the soldering iron gun to heat the closely around the