**Payload and Parachute Design (and Construction)**

*The sensor we send up needs to be connected to the weather balloon and needs protection along its journey. It also needs to fall back safely and SLOWLY to Earth. Moreover, if someone finds our sensor, they need to know what it is, what it does, and why we’re collecting the data.*

1. **Payload:** Your job is first to design and then to construct a payload that meets ALL of the following criteria:

* Has a mass of no more than 75 g total (including the parachute)
* Has no metal or foil
* Can easily hold and cushion the sensor and allow the sensor probe and radio antennae to “stick out”
* Can easily connect to the balloon and parachute by a string or cable
* Can be easily opened to load and remove the sensor (but will stay securely shut during the flight)

Suggestions: On a separate piece of paper, sketch and propose your team’s design and HOW you’ll construct it. Find the mass of the raw materials. Then construct and re-test the mass.

1. **Parachute:** Your parachute must easily connect to the payload & the balloon and meet the following criteria:

* Has a diameter of ~18”
* Has secure attachments for the string/ cord
* Meaningfully slow down the fall of the payload and sensor

Suggestions: Feel free to re-watch an instructional video for ideas: [http://www.sigmarockets.com/blog/2011/06/making-a-model-rocket-parachute/](https://csdmail.csdvt.org/owa/redir.aspx?C=3K-6Bx0DQUyrdYF7CjbRgjhvlBD7k9BIf9WWF7Q0Ackm1Q0QiWP6M3LlV2J7_TRbfhYu6sYq-VA.&URL=http%3a%2f%2fwww.sigmarockets.com%2fblog%2f2011%2f06%2fmaking-a-model-rocket-parachute%2f)

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1. **“If found” letter:** Your final job is to craft a short letter to the public that addresses/includes each of the following:

* Identifies who we are and where the balloon started its journey
* Explains why we’re conducting the weather balloon launch and what information we’re collecting
* Includes contact information (phone and email) for CHS and for Ms. Lenorovitz:
  + [lenorovitzk@csdvt.org](mailto:lenorovitzk@csdvt.org); 802-264-5700
* Allows enough space for ALL ESS participants to sign
* Is typed, well-edited, carefully crafted, and professionally presented
* Is no longer than 1 page

**YOUR ENTIRE PAYLOAD, PARACHUTE, and “IF FOUND” LETTER IS DUE NO LATER THAN: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**TOTAL MASS OF payload, parachute and letter= \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**NOTE: YOUR TEAM’S NAMES AND MOD NEED TO BE ON ALL PARTS.**