ESS 200 (Stapleton) Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Hot Air Balloon Project

Grading Rubric

Scoring of 3 point items: 3 = Complete and correct; 2 = Mostly complete/correct; 1 = Included, but mostly wrong; 0 = missing

Point Values of Project Components:

1. (3) There is a title slide with names of group members.
2. Section 1: The Balloon
   1. (3) One or more photos clearly show(s) the plastic sheeting, bamboo skewers, fuel platform, and fuel.
   2. (3) Each of the features above is clearly labeled with a callout.
   3. (2) \*\*Groups of 3 have a labeled photo showing the tracing of the design.
   4. (2) \*\*Groups of 3 have a labeled photo showing process of cutting and sealing of the plastic.
   5. (2) \*\*Groups of 3 have a labeled photo showing process of making the fuel platform
   6. (2) \*\*Groups of 3 have a labeled photo showing process of adding the fuel.
3. Background Section:
   1. (3) The diagram(s) is(are) useful and easy to understand.
   2. (3) The background section is written in paragraph form. It is not simply a list.
   3. The following information is provided by the paragraph(s):
      1. (3) What happens to the motion of the particles inside the balloon as they heat up?
      2. (3) What happens to the balloon’s density, and why does that happen?
      3. (3) When you explain what happens to the balloon’s density, be sure to link this change to any changes in mass and volume.  In other words, explain how and why a change in mass and/or volume causes the change in density.
4. Methods section: is there a clear explanation for how each of the following data were found?
   1. (½)Empty Mass \*\*(1) Groups of 3 include a photo showing empty mass measurement.
   2. (½)Balloon Volume. \*\*(1) Groups of 3 include a photo showing volume measurement.
   3. (½) Total Mass attached to hovering balloon
   4. (½) Lowest electronic Balance Reading during flight
   5. (½) Extra mass “lifted”
   6. (½) Temperature of classroom air at time of flight
   7. (½) Air pressure at time of flight
   8. (½) Dewpoint at time of flight
   9. (½) Density of classroom air, in g/cm3
   10. (½) Total mass (if the balloon were made neutrally buoyant)
   11. (½) Mass of hot air in the balloon
   12. (½) Density of hot air in the balloon
   13. (½) Temperature of the hot air in the balloon
5. Data: For the data below, are the measurements reasonable? Are the calculations correct?
   1. (½) Empty Mass
   2. (½) Balloon Volume
   3. (½) Total Mass attached to hovering balloon
   4. (½) Lowest electronic Balance Reading during flight
   5. (½) Extra mass “lifted”
   6. (½) Temperature of classroom air at time of flight
   7. (½) Air pressure at time of flight
   8. (½) Dewpoint at time of flight
   9. (½) Density of classroom air, in g/cm3
   10. (½) Total mass (if the balloon were made neutrally buoyant)
   11. (½) Mass of hot air in the balloon
   12. (½) Density of hot air in the balloon
   13. (½) Temperature of the hot air in the balloon

Total (groups of 2) = \_\_\_\_\_/39 Total (groups of 3) = \_\_\_\_\_/49