

Name \_\_\_\_\_ Teacher \_\_\_\_\_ Date \_\_\_\_\_

## 3.4PT: Grading Plants' Mass Changes, Part 2 Worksheet

*This worksheet has "grading" in the title because at this point, students can be held accountable for correct answers. Level 4 (correct) responses to the questions are in **blue bold italics** below. There are also comments about common Level 2 and Level 3 responses to help you with grading and making decisions about what to emphasize in future lessons.*

*Red italics suggest ways to grade student responses by giving them points for correct or partially correct answers. There are 9 points total on this worksheet.*

Use this worksheet to complete the Observing Plants' Mass Changes investigation and to record your observations, measurements, and class results.

### A. Steps in the investigation: Check the box as you complete each step.

Gather together the following worksheets:

- Pre 0.2PT Plant Growth Investigation Setup and
- 3.2PT Observing Plants Mass Changes Part 1.

### B. After the plants are dry:

- Mass the envelope with the dried plants inside: \_\_\_\_\_ grams *1 point for measurement.*
- Subtract the mass of the empty envelope and record the total mass of your dry plant material: \_\_\_\_\_ grams. *Record this in the table below.*
- Mass the dry paper towel from your container: \_\_\_\_\_ grams. *Record this in the table below.*
- Fill in the following data in the data table in Part B, below, on this worksheet using data from your previous worksheets:
  - a. Total mass of the paper towel before you planted (Pre 0.2PT)
  - b. Total mass of the radish seeds added to your container (Pre 0.2PT)

**C. Dry Mass Experiment Summary Table:** Record the values from the Pre 1.2 and 3.2 worksheets here. If the mass is less than 0.01g, record it as <0.01g. For our purposes, we will treat this as a zero when doing any calculations with it.

6 points total (if mass of paper towel is measured)

| <b>Inputs</b>   | <b>Outputs</b>  |
|---|---|
| Total mass in containers BEFORE   | Total mass in containers AFTER  |
| 1. Total mass of radish seeds: _____ g  | 2. Total mass of dry radish plants: _____ g   |
| 3. Total mass of brown paper towel (optional) _____ g   | 4. Total mass of dry brown paper towel (optional) _____ g   |
| <i>1 point per measurement. 2 points total (if mass of paper towel is measured)</i>                                   | <i>1 point per measurement. 2 points total (if mass of paper towel is measured).</i>                                |
| <b>Change in mass of radish plants:</b><br>(= #2 – #1):<br><br>_____ grams<br><i>1 point for correct calculation.</i> | <b>Change in mass of paper towel:</b><br>(= #4 – #3):<br><br>_____ grams<br><i>1 point for correct calculation.</i> |

**D. Results for the whole class:** Make notes about how the observations and measurements of other groups compared to yours. Describe patterns in your class data.

**1. Changes in dry mass of the plants:**

All students should observe an increase in dry mass of the plant compared to when it was a radish seed.

*1 point for class patterns.*

**2. Changes in dry mass of the paper towel (optional):**

All students should observe little or no change in the dry mass of the paper towel from the beginning to the end of the experiment.

*1 point for class patterns.*