

Pre-Lesson Activity 0.2PT: Plant Growth Investigation Setup Worksheet

This worksheet has “grading” in the title because at this point, students can be held accountable for correct answers.

Red italics suggest ways to grade student responses by giving them points for correct or partially correct answers. There are 15 points total on this worksheet.

You will need (for each group):

- Small (e.g. 7X10 cm) aluminum container
- 20 radish seeds
- 15 cm of cotton yarn
- Brown paper towel (roll or 2-3 sheets ea.)
- Markers/masking tape to label your container
- A balance to measure masses

The class will need:

- Large trays with at least 5 cm sides to put the containers in and hold water.
- Grow lights (recommended)
- 1 L of water (for starting seeds)
- 1 L of water with dilute nutrients. (E.g. Ionic Grow, Miracle Grow, etc.) for use once seeds have sprouted.

Follow the procedures below to set up your investigation.

A. Planting the seeds: *Check the box as you complete each step.*

- Count your radish seeds. Record how many seeds you will plant in the table below.
- Measure the mass of your radish seeds and record in the table.
- Label your aluminum container with your names and class period.
- Poke a hole (with a pencil or carefully with scissors) through the bottom of your aluminum container.
- Run the yarn through the hole so that half the yarn falls outside the container and half is inside.
- Crunch up 2-3 chunks of brown paper towel and place in the bottom of the container.
- Cut out a piece of brown paper towel big enough to cover the bottom of the container and a bit up the sides. You'll place your seeds on this piece of paper towel, so let the edges curl up so the seeds don't fall out. **Optional:** Mass all the brown paper towel in your container and record in the table.
- Carefully place all of your radish seeds on top of the paper towel. Spread them out a bit to give them room to grow.
- Carefully transfer your planted container to the class tray.
- As a class, gently pour some of the plain water in to the class tray with just enough to soak the paper but not put the seeds under water.
- Place the trays in a sunny, warm windowsill or under grow lights.
- Use the rest of the water only as needed throughout the growing period. You can start using the nutrient solution once the cotyledons turn green. Caution: If your plants get too wet, they'll mold!

1 point for each correctly completed box. Answers will vary.

3 points total

Number of seeds massed and planted	Total mass of the seeds	(Optional) Mass of the paper towel
	grams	grams

B. Ongoing Observations and Data Collection

As your radish plants germinate and grow, make regular observations in this table.

Ideas of what to record: germination date, percent of seeds that germinate, how often you add water to the trays, appearance of growing plants, how fast the plants are growing, and more!

2 points for each correctly completed set of observations. Answers will vary. Observations should include relevant measures (based on suggestions in the instructions). Quantitative measures (those measured with a number) should be included whenever possible. Up to 12 points total.

Date	Observations