

The Research Log Book

The Log Book is a day to day record of all activities you did on your research project. It tells what was done, where it was done, and when it was done. It is PROOF of what you did!

Your Log Book should:

- be a **composition book** (do not use spiral or loose leaf paper)
- have your name, school name, and teacher name on front cover
- be **handwritten in ink**, not pencil
- **have every entry dated**, include place, time, and exactly what you did
- include your reach of topic from the internet or library
- give a **brief summary of the literature** you reviewed
- include your **problem statement** (stated as a question)
- **state your hypotheses** (measurable predictions)
- include a **description of all equipment** you used (include sizes, materials, cost, etc.)
- have specific **instructions for making solutions and/or media**, if applicable
- include all of your **raw data**
- **include additional observations** during experimentation that are not part of your raw data (such as temperature, pressure, anything unusual that happened)
- include in your data **accurate METRIC measurements**. Give masses in grams, volumes in milliliters, and linear measurements in centimeters or meters.
- have all **statistical analyses** (include equations used and show calculations)
- have a **list of all contacts** (scientists, engineers, etc.) with phone numbers, FAX, e-mail, etc.
- have **every entry (day) on a new page** with the date and time at the top of the page and the place where work was done
- include any **specific precautions for chemicals** used that require special care (you find this out from the SDS sheet on each chemical)
- include **disposal** (autoclaving) of cultures of microorganisms



As a general rule, if in doubt include it in the Log Book. **It is better to have too much data than not enough, so keep LOTS of notes.**

Sample Logs

October 30, 1987 -
 why are hot air rises then
 mountains cold?

October 31, 1987 -
 I did some research
 about the question I asked
 yesterday. When warm air
 rises, the pressure of the
 air decreases and then the
 air expands. As the
 air expands it cools off.
 That is why the peak of
 mountains are cold even
 in hot air rises.

← DATE → PAGE NO → ①

January 19, 1999
 The measurement of Poisson's Ratio

Background
 What is Poisson's Ratio?

Poisson's Ratio, $\nu = -\epsilon_r / \epsilon_a$
 change in diameter / axial strain

$\epsilon_r = \Delta d / d_0$ or lateral strain
 $\epsilon_a = \Delta L / L_0$ axial strain

Initial diameter d_0
 change in length ΔL
 initial length L_0

ϵ_r and ϵ_a will have opposite signs
 ... sign in definition of ν

The basic principle in this lab is to
 apply force, measure change in length,
 measure change in diameter,
 compute axial and lateral strain by dividing
 change in length by original
 length and change in diameter by
 original diameter

PRINCIPLE

12/17/2010
 Temperature Reading in
 Compost Bin

12/20/2010 - First reading after starting
 75°F (humidity 55%)
 12/21/2010 - Temp 70.8°F Humidity 55%
 Mixed compost with food off-
 the-shelf slurry 1st

12/22/2010 - Temp 75°F Humidity 58%
 Because had started but some food
 left still visible

1/4/2011 - Temp 44°F Humidity 58%
 Did not mix Added more kitchen scraps

1/3/2011 - Temp 70°F Humidity 57%
 Mixed Added scraps
 Visual change: now clearly decomposing
 all contents
 Some change in packaging
 but not color

JANUARY 10, 2008
 PROBLEM! I went to check on
 THE PLANTS AND DISCOVERED THAT MY
 CAT HAD SCRATCHED THE POTS OF SOIL
 AND ATE 4 OF THE 12 PLANTS.
 I HAVE TO REPLANT EVERYTHING.

I NEED TO PROTECT THE PLANTS
 FROM THE CAT. MAYBE I CAN USE
 SCREEN AROUND THE POTS.

JANUARY 11, 2008
 REPLANTED 12 NEWLY PLANTED
 CONTAINERS. CREATED A SCREEN A
 THE PLANTS TO KEEP CAT OUT.

3/19/99
 Green tags W04G-1
 3/20/99
 Green tags W04G-1
 3/22/99
 Peter off ~ 9:30 - know
 Fertilized all plants w/ Peters 20-20-20
 200 ml/pot - seeds up
 100 ml/pot - unmeasured pots
 removed #08 RO-01-7

5/20/99 2:20pm clear, almost cloud free day
 light levels monitored

Temp	1	2	3	4	5	6
75% ①	1	2	3	4	5	6
80% ②	1	2	3	4	5	6
75% ③	1	2	3	4	5	6

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