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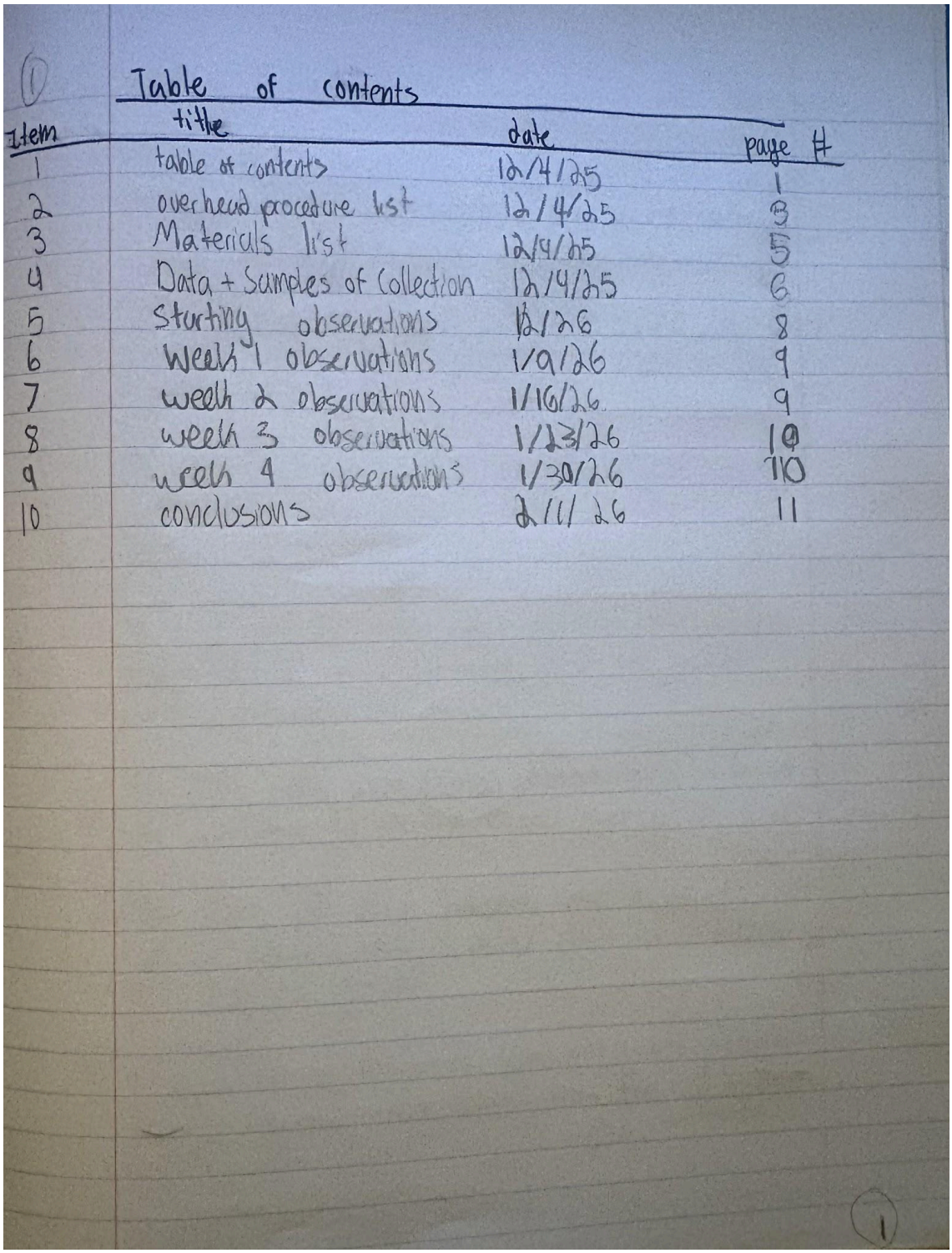
Honors Chemistry
12 February 2026



1

Table of contents

Item	title	date	page #
1	table of contents	12/4/25	1
2	overhead procedure list	12/4/25	3
3	Materials list	12/4/25	5
4	Data + Samples of Collection	12/4/25	6
5	Starting observations	12/26	8
6	Week 1 observations	1/9/26	9
7	week 2 observations	1/16/26	9
8	week 3 observations	1/23/26	10
9	week 4 observations	1/30/26	10
10	conclusions	2/11/26	11

1

(2) Overhead procedure list 12/4/25

- 1. Rainwater was collected using a large bucket and during a rainstorm and stored in the bucket with a lid.
- 2. Greywater was collected in a large bucket that was drained from a laundry machine, stored in the bucket with a lid
- 3. 12 small pots of 500 mL were selected and filled completely with identical soil from a store-bought bag.
- 4. 7 petunia seeds were added to each pot and were buried 2 centimeters deep and recovered with soil.
- 5. The pots were placed indoors on a table near a window to recieve equal sunlight.
- 6. The 28 plant samples were divided into groups of 7 plants over 4 pots and labled according to sample group.
- 7. 100 mL of rainwater was measured using a measuring cup and poured into the soil of each of the 4 rainwater sample pots.
- 8. 100 mL of Greywater was measured using a measuring cup and poured in each of the 4 greywater sample pots.

(3)

12/4/25

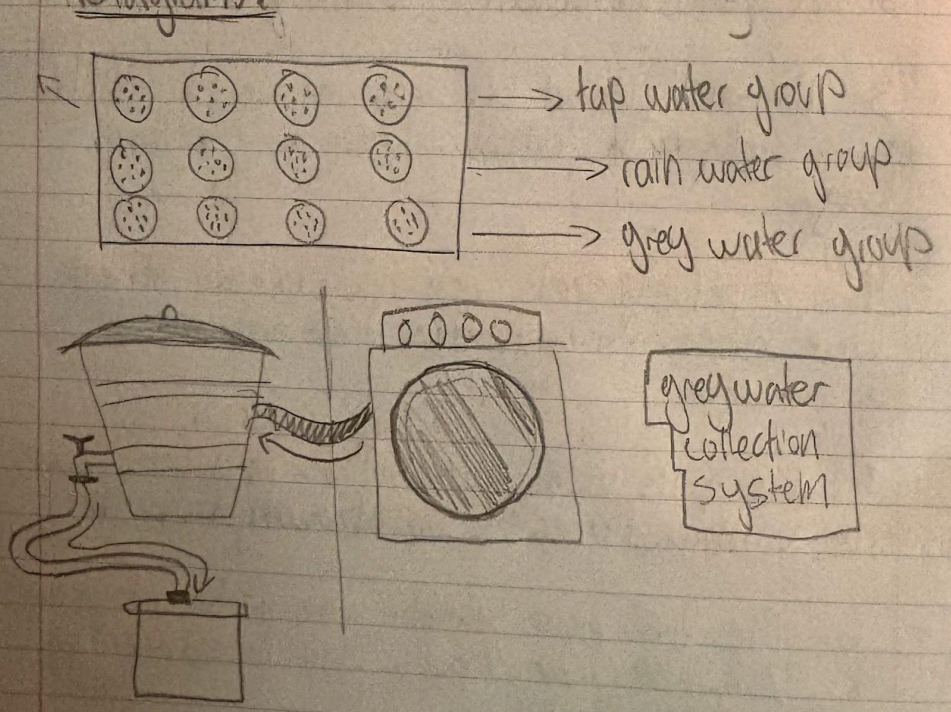
overhead procedures list

continued...

9. 100 mL of tap water was measured using a measuring cup and poured into the soil of each of the 4 tap water sample pots.

10. Steps 7 through 9 were repeated every 2 days

- Diagrams:



- NOTE: CDC handwashing procedure was followed after any interaction with soil/dirt

(3) Materials List 12/14/25

1. 500mL pots were used (12) to hold plants and soil.

2. Soil purchased from a home-goods store was used to fill pots and grow plants.

3. Plastic Measuring cups were used to measure water

4. Water Basin used to drain greywater from laundry machine

5. 2 large plastic buckets, one that collected rainwater and one that collected water from spicket from laundry water basin.

6. 84 total petunia nana compacta seeds, four per pot, used to grow plants in the experiment

7. Rainwater, to be used on rainwater sample plants

8. Tap water, to be used on tapwater sample plants

9. Greywater, to be used on greywater sample plants.

(4) Data + Sample of collection

12/4/25

- Data was measured in terms of vertical centimeters adverayed within experimental groups and number of total leaves appearing in an expiremental group.

vertical growth avgs.

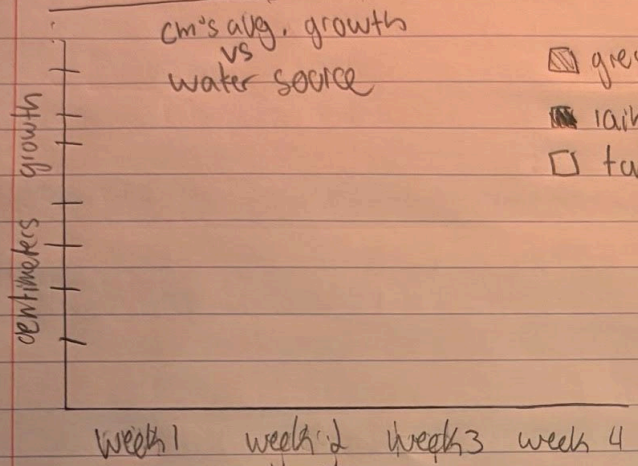
	week 1	week 2	week 3	week 4
rain	0	0	0.07	0.19
grey	0	0.04	0.45	0.64
tap	0	0.08	0.21	0.25

sprouts + leaves

	week 1		week 2		week 3		week 4	
	sprouts	leaves	sprouts	leaves	sprouts	Leaves	sprouts	leaves
rain	0	0	0	0	1	2	3	6
grey	0	0	3	5	6	12	8	14
tap	0	0	2	3	3	4	3	4

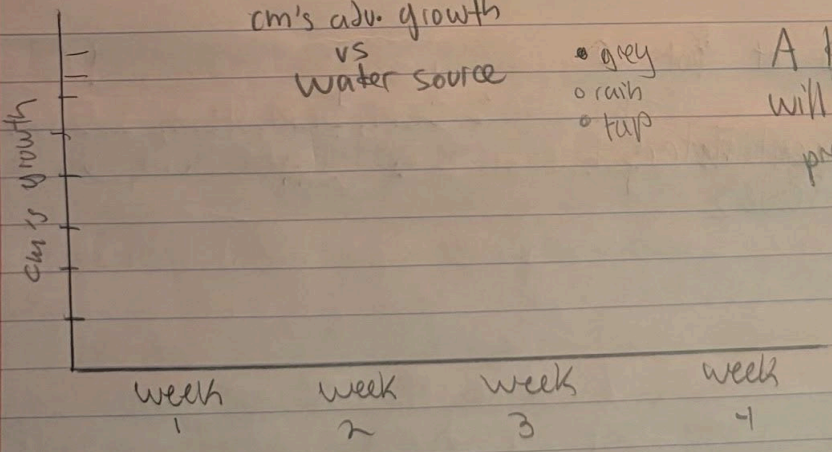
Data + Sample Collection 12/4/25

SAMPLE #1



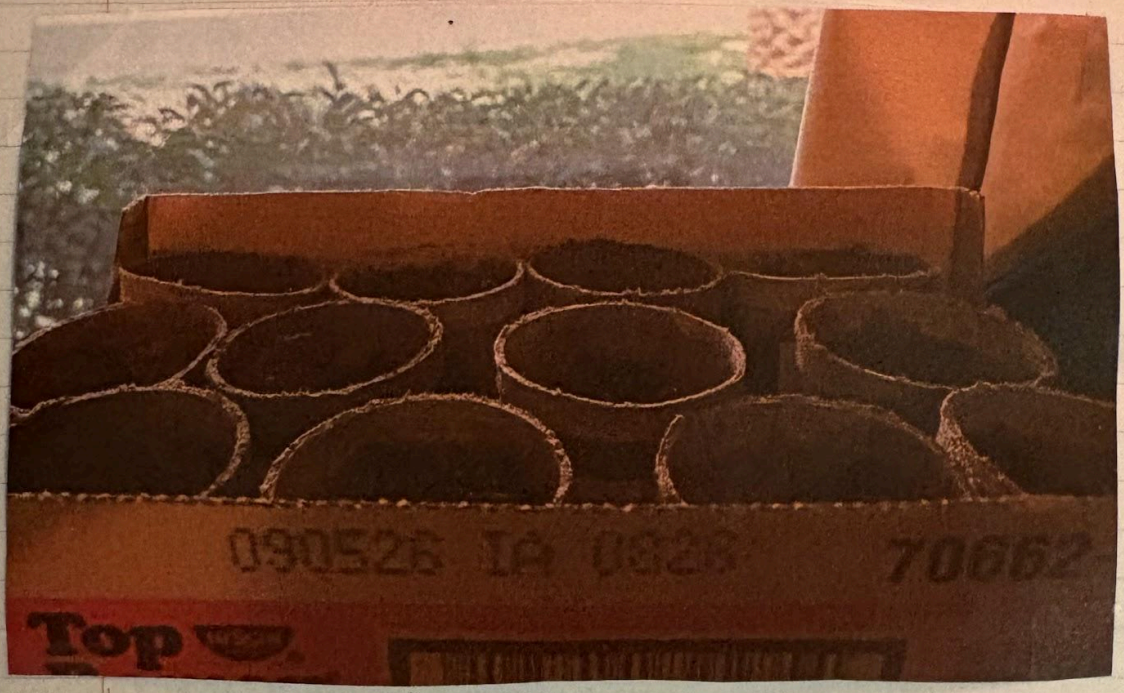
A bar graph will be filled to present data

Sample #2



A line graph will be filled to present data.

(5) starting Observations 1/2/26



set up of pots ↗

0 centimeters
0 leaves

(6) Week 1 observations 1/9/26

- Centimeters: 0 across all groups
- leaves: 0 a across all groups

Observations petunia seeds small, should germinate/sprout after 10-14 days after planting
- rainwater - clear
- greywater - cloudy/murky

(7) Week 2 observations 1/16/26

- Centimeters: 3 cm's total greywater growth - 3 sprouts, each ≈ 1cm tall each.
3cm's total tap water growth - 2 sprouts
no rainwater sprouts

- leaves: Each greywater plant has 1-2 leaves, 5 leaves 3 leaves have appeared on the 2 tap water sprouts.

- Observations: 3 total sprouts have appeared in the grey water pots - all three in one pot.
2 sprouts of tap water plants. One is short, but the other fairly tall.

zero growth in rainwater pots.

(8) Week 3 observations 1/23/26

Centimeters: Greywater heights - 1cm, 2cm, 2cm, 2cm, 2.5cm, 3cm
Tap water heights: 2cm, 2cm, 2cm

Rain water heights: 2cm

leaves: all sprouts have 1-2 leaves on top - none have more than 2 (grey - 1, tap - 4, rain - 2)

Observations: 6 total sprouts of greywater, 1 rainwater sprouts, and 3 tap water sprouts have appeared. 3 of the greywater sprouts are new, one of the tap water sprouts is new, and the rainwater sprout appeared this week

(9) Week 4 observations 1/30/26

Centimeters: Greywater: 3cm, 3cm, 4cm, 2.5 cm, 2cm, 1cm, 1cm, rainwater: 2cm, 1cm, 2.5 Tap: 3cm, 2cm, 2cm

leaves: Each greywater sprout has 2 leaves, rainwater has 2 leaves per sprout, tap only has 4

Observations: 7 out of the 8 greywater sprouts have grown in 1 pot. 2 rain sprouts are in 1 pot, but the 3 tap water sprouts are in 3 different

conclusions 2/1/16

- Greywater yeilded greatest # of sprouts, leaves, and average vertical centimeters, which negated the hypothesis that rainwater would yeild the best results was negated.

- Rainwater samples and tap samples seem to yeild very similar results, while greywater had a substantially greater average growth and in number of sprouts.

- Thoughts:
  - Further trials with different plants species and extented trial period would help to generalize test results.

  - A chemical analysis of the water sources would provide more scientific reasoning behind the study and its results.