

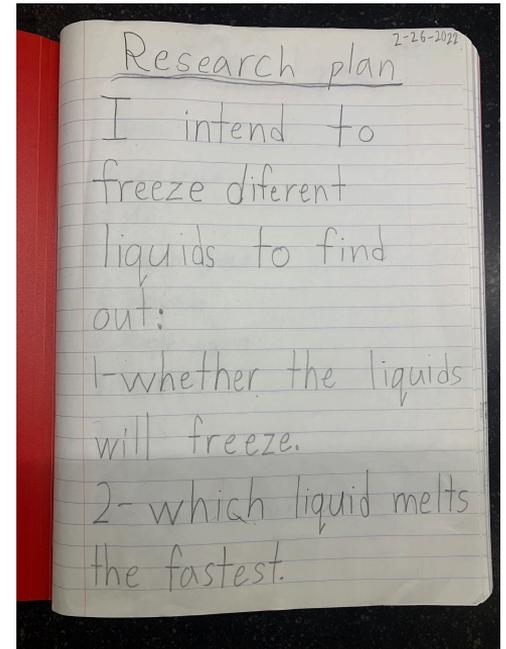
Captain Elementary
Science Fair:
Freeze and Melt

Grade 2

Freeze and Melt Project Plan

I intend to freeze different liquids to find out:

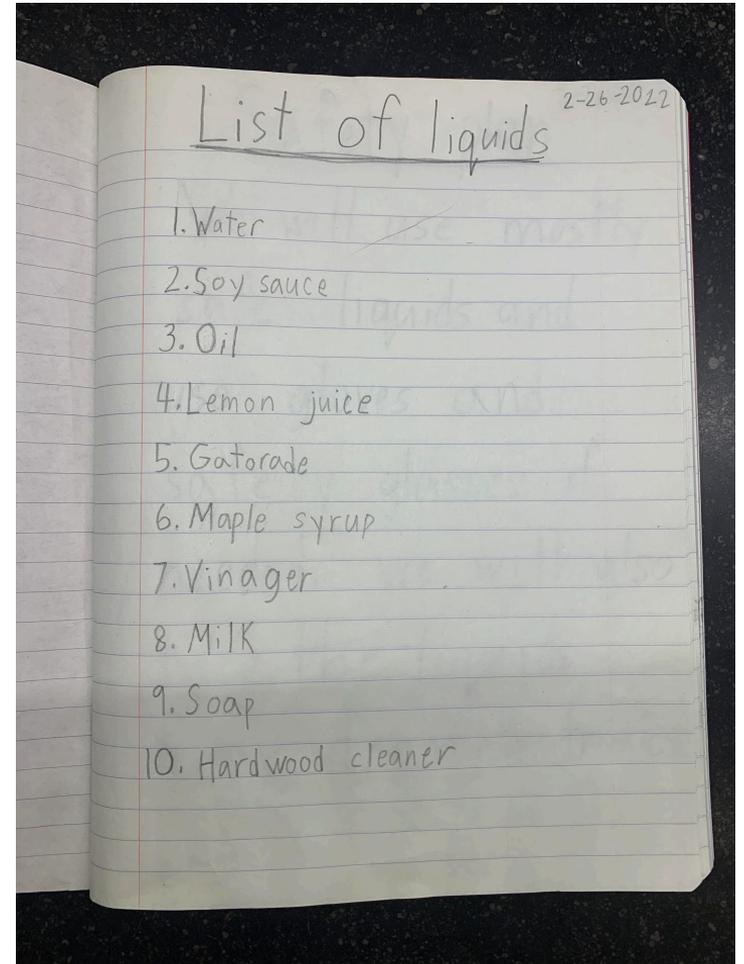
- 1) Whether the liquids will freeze.
- 2) Which liquid melts the fastest.



Procedure:

1. I walked around the house to find interesting and safe liquids to freeze.
2. I formulated my hypotheses: A) I think all liquids will freeze except maple syrup, soap, and oil. B) I think water will melt the fastest.
3. I used a syringe to put 8 ml of the liquids in a ice cube tray.
4. I put the ice cube tray in the freezer at 3F.
5. I waited 48 h.
6. I checked to see if the liquids had frozen.
7. I used a toothpick to see if the liquids had completely frozen.
8. I recorded which liquids had frozen and which hadn't.
9. I used a stop watch to measure how long it took for each liquid to melt at room temperature (72F).
10. I recorded the results.

Data: Selected Liquids



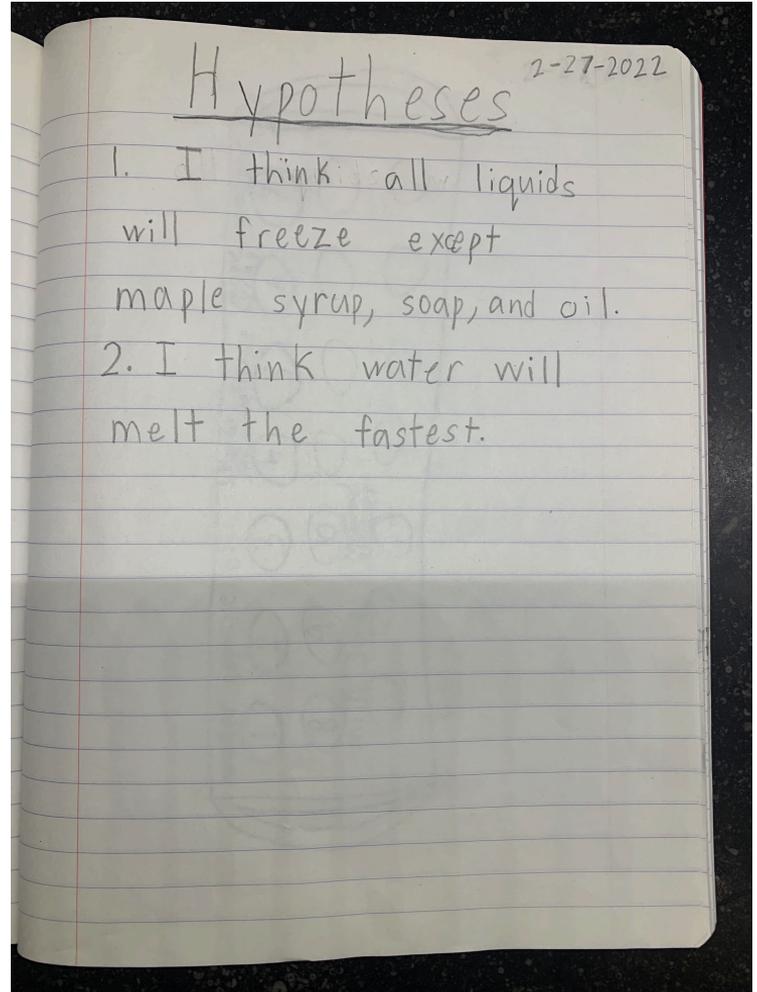
Predictions

1) Whether the liquids will freeze:

- I think all liquids will freeze except maple syrup, soap and, oil.

2) Which liquid melts the fastest:

- I think water will melt the fastest.



Controls and Variables

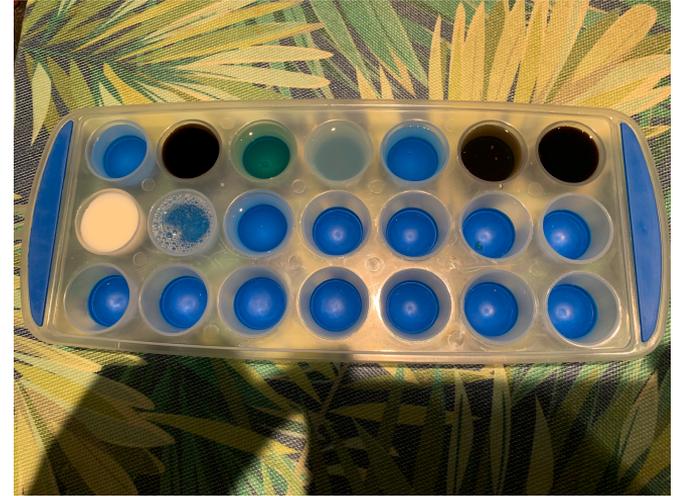
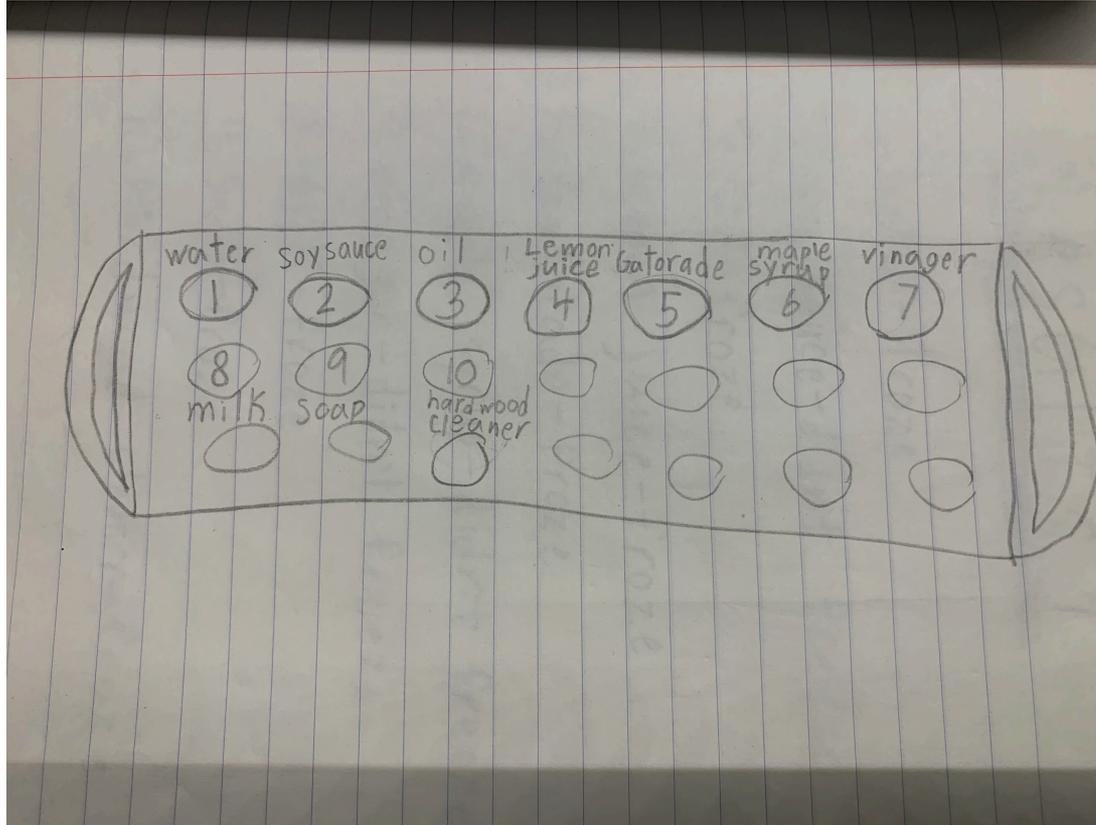
Controls 2-27-2022

1. freezer temperature
2. room temperature
3. Amount of liquids (ice cube tray) water will

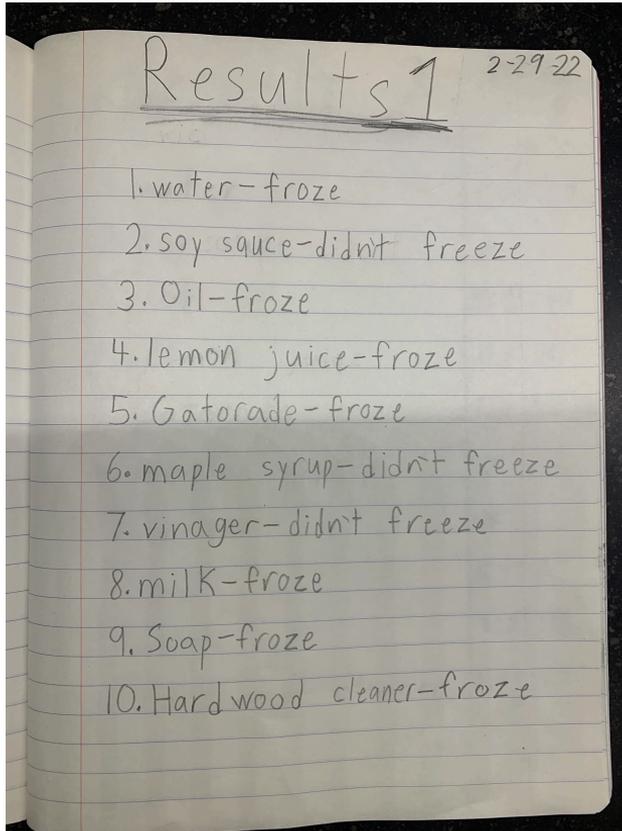
Variables

1. different types of liquids

Data: Ice Cube Tray



Conclusion and Reflection for Hypothesis 1

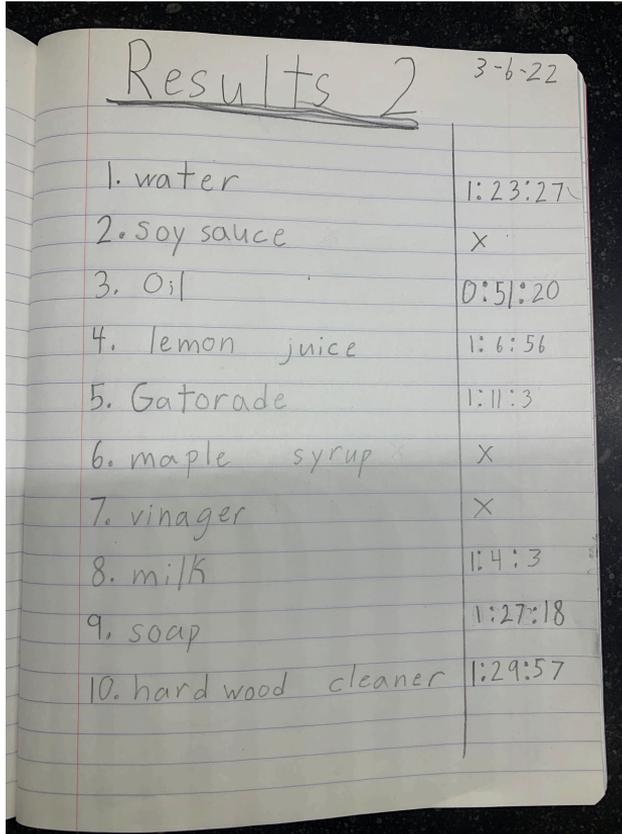


I found out that the dark liquids (soy sauce, maple syrup, vinegar) did not freeze.

I was surprised that the soap and the oil froze.

If I did it again, I would do it with more similar liquids like tap water and sparkling water. But I would also use shampoo because it sounds fun.

Conclusion and Reflection for Hypothesis 2



A photograph of a handwritten notebook page titled "Results 2" dated "3-6-22". The page contains a list of 10 items with their corresponding melting times. The items are: 1. water (1:23:27), 2. soy sauce (X), 3. Oil (0:51:20), 4. lemon juice (1:6:56), 5. Gatorade (1:11:3), 6. maple syrup (X), 7. vinegar (X), 8. milk (1:4:3), 9. soap (1:27:18), and 10. hard wood cleaner (1:29:57). The table is drawn with a vertical line separating the item names from the times.

Item	Time
1. water	1:23:27
2. soy sauce	X
3. Oil	0:51:20
4. lemon juice	1:6:56
5. Gatorade	1:11:3
6. maple syrup	X
7. vinegar	X
8. milk	1:4:3
9. soap	1:27:18
10. hard wood cleaner	1:29:57

- I found out that the oil was the first liquid to melt. I also found out that the liquids with more fat (oil and milk) melted faster than the liquids with more water.
- I was surprised that my hypothesis (the water will melt the fastest) was not correct. In fact the water was the second to last to melt.

Appendix: Safety Plan

