

## Albedo and ice: positive feedback in action

# Worksheet 2: Explore

Read the instructions **carefully**.

Are you ready to collect and record data? Double check and be ready to collect and record data by filling in a table like this, with at least 12 rows, which is suitable for recording data for an hour (one row for every 5 minutes)

Time elapsed (min)	Melted milk (g)		Observations
	White	Black	
0			
5			
(...)			

Template data table

### Instructions

1. Now is the time to turn on the light. Start the stopwatch too!
2. Every 5 minutes, read both scales carefully and simultaneously, recording the masses of melted milk collected inside the two cylinders. Repeat until the two frozen sheets (W and B) are completely melted. Don't forget to add all the data collected to the table.
3. Observe very carefully every single detail of the experiment, and take notes in the appropriate "observation" column.
4. After both frozen layers have been completely melted, turn off the lamp and stop the stopwatch.
5. Draw a graph with minutes on the x axis and grams of melted milk on the y axis. Plot both sets of data and label them with W (for white conditions) and B (for black conditions).



### Questions

1. Focus on the W and B masses of melted milk: what kinds of trends are showing over time?
  - a. one increasing, the other decreasing
  - b. both increasing
  - c. both decreasing
2. Calculate the rate of melting (g of melted milk per minute) under the two conditions over the course of the experiment.

$$\text{Rate of melting} = \frac{\text{Total melted mass (g)}}{\text{Total time (min)}}$$

Rate of melting (black):

Rate of melting (white):

3. Are the rates of melting under the two conditions:
  - a. identical?
  - b. different?
4. Now compare the mass values of the two plates at each measurement time point and calculate the difference (delta) between them. How does it evolve over time? Can you explain this?

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