PROJECT 2 CONCEPT SKETCH

Here we go! The goal of this activity is to generate a set of coherent, feasible ideas for Project 2. Working with your project partner(s), generate ideas for each of the boxes below. Then select or refine these ideas to develop a single "concept sketch" by filling in the boxes. If you would like to develop multiple ideas, extra handouts are available — please feel free!

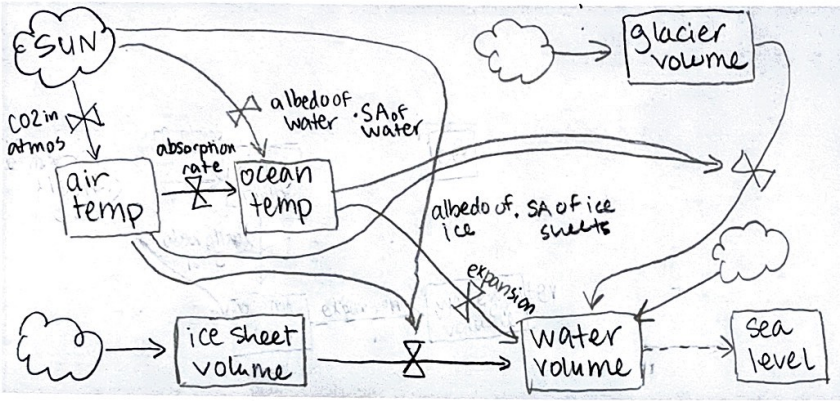
1 Question

What is the motivating question?
Capture it as concisely as you can.

How does the sea level rise in response to carbon dioxide in the atmosphere causing the retention of heat from the sun?

2 Stock and Flow

Draw a stock and flow diagram of the system. Label everything you can, including the parts most relevant to your question. Are you primarily examing a stock? a flow? a parameter of some kind?



3 Model

How can a model help you answer the question? Using your stock and flow, capture the key elements of the model (e.g., state, actions, parameters, metrics)?

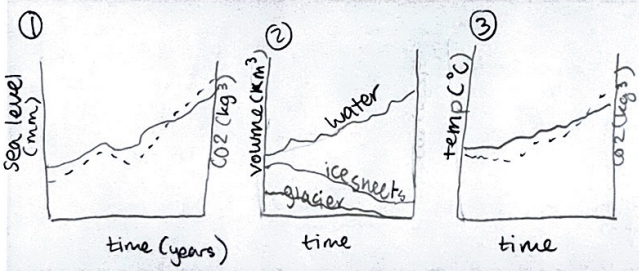
state : airtemp, oceantemp, ice sheet vol, glacier vol, water vol

params : CO2 levels, albedo of water, albedo of ice, SA of water, SA of icesheets, water expansion rate, water heat absorption rate, heat from sun

metrics: sea level rise

4 Results

What does an answer to the question look like? What output would you expect the model to produce? Draw at least one graph — be sure to label the axes.



5 Interpretation

Why would the results answer the question? What implications might they have in the real world? Why should people care? Also think about what you're choosing to leave out of your abstraction: how important might it be in affecting your results?

graph #1 will show if there is a relationship between carbon dioxide in the atmosphere and sea level rise.

If we enter future years' carbon dioxide levels, we will be able to predict the future sea level. This information is important because it can be used to predict which areas of land might be flooded in the future.

We are assuming that the melting of glaciers due to direct sun rays is negligible, that ice sheets maintain a constant surface area, and that the % of the surface covered in water will remain nearly constant.