Investigation: How are currents formed?

Materials Per Group:

- Large clear jar (Mason)
- Ice
- Plastic Wrap
- Rubber Bands
- Matches

Investigation Questions:

- How does unequal heating and cooling of air affect the movement of air particles?
- How can we explain the behavior using a conceptual model?

Procedure (what we will do, after predicting what will happen):

- Light a match and let it burn for a few seconds then extinguish the flame and quickly place the smoking matchstick into the jar.
- Cover the jar with the plastic wrap and use the rubber band to seal the wrapping to the jar. Make sure to leave a little indent in the plastic wrap to hold the ice.
- Place the ice on the top of the jar in the plastic wrap pouch you created.
- Record data, observations, and any questions that arise during the investigation.

Predict - Write down your answers in your individual science notebook:

- What will happen inside the jar when you place the smoking matchstick into the jar and cover it with ice? Explain your reasoning by developing a model and writing an explanation?
  Briefly compare and discuss your prediction within your small group.

Investigate:

Execute the procedure and observe and record the results.

Individual Reflection:

In your science notebook, write down the answers to the following questions/prompts:

- How would you describe what you observed? (What was the behavior?)
- How would you explain what you observed using your notes from the discussion a conceptual model? (What caused the behavior?)
- Develop a conceptual model that shows your understanding of the phenomena you observed.

Small Group Discussion:

- As a group how would you represent this situation using a conceptual model?
  What parts of the system would you include in your model?
  Would there be a part of your model that is able to move? If so which part and why?
  What parts would change in your model and what parts would stay the same throughout the investigation you just conducted?
- How would you explain what you observed to someone that has not conducted this investigation?
- Remembering that scientific models must include rules, can you think of rules that might need to be included within a conceptual model of this investigation?

Small Group Model:

- Using the small group discussion as a guide, create a conceptual model that explains what you observed throughout this investigation. Remember to incorporate the criteria that all scientific models must have.

Whole Group Discussion:

- Each small group will post and present their models to the whole class. The group presentations should include an explanation of why the group made the model they did and what the rules in the models are.