

Conduction with Density Blocks

Materials Per Group:

- 1 set of 2 metal blocks
- 1 set of 2 non-metal blocks
- Triple Beam Balance
- Thermometer
- Small Plastic Cups
- Forceps
- Paper Towels (for clean up)
- Ice, uniformly created
- Poster paper or Whiteboards
- Markers

Investigation Questions:

- How do the temperatures of the blocks compare to one another (metal to non-metal)? Is the temperature the same/different? Why?

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

- Find the weight of the density blocks using the triple beam balance. Use the forceps to move the ice cubes around.
- To find the weight:
 1. Determine the weight of the small plastic cup on the balance
 2. Using the forceps, place the ice cube into the plastic cup and place the cup onto the balance.
 3. Determine the weight of both the ice and cup together
 4. Subtract the weight of the cup from the weight of the cup and ice together

Predict: In your individual science notebook, write down your answers:

- What will happen when you put the ice cube onto the metal block? Explain your reason for this.
- What will happen when we put the ice cube onto the non-metal block? Explain your reason for this.

Briefly compare and discuss your predictions within your small group.

Investigate:

- Execute the procedure and observe the results.
- Record any observations that you have made during the investigation

Individual Reflection:

In your science notebook, write down the answers to these questions:

- How would you **describe** what you observed with the ice cubes? (What **was** the behavior?)
- How would you **describe** what you observed with the blocks? (What **was** the behavior?)
- How would you **explain** what you observed, using a conceptual model? (What **caused** the behavior?)

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 process 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.