ILD 9: Name: _____ Tutorial section _____

Making a model: Thinking about electric force

Directions: This sheet will be collected. Follow your instructor's directions. It will not be graded, so write whatever you wish.

1: Personal Experiences: What experiences have you had that you attribute to static electricity?

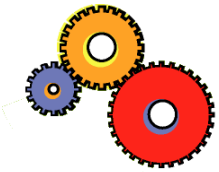
Considering these experiences, can we generate a description of what's happening that is consistent with the Newtonian Synthesis we built in the first term?

2. Modeling Skills Practice: Do your general rules account for the observations of the paper bits sticking to the glass and the balloon sticking to the wall? You may feel sure that there are two types of charges that can attract or repel, but is that the only model your observations support?
Can you rule out another model?

Model 1:

Model 2:

How can we decide between the models? *(Implications game.)*



3. Experiment. Get a piece of tape (2 or 3 inches) and fold over a little bit of one end. Stick the tape to your desk with the folded end sticking out over the edge of the desk. Write the letter "B" on the tape. Now get another piece of tape and fold the end in the same way. Put the second tape directly on top of the first and write the letter "T" on it.

Pull both tapes off the desk, and then holding the folded ends in opposite hands, pull the two tapes apart. With your neighbor, observe and record what happens when you:

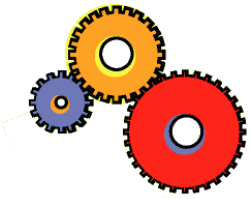
(a) put two "T" tapes near each other

(b) put two "B" tapes near each other

(c) put a "B" and a "T" tape near each other

Does distance matter? How?

Use your observations to help you evaluate the two different models and to add to or modify them as necessary.



5. Resolution. How does the model we've chosen explain the attraction of paper bits to a comb and the rubbed balloon sticking to the wall?

6. Reflection: Instead of simply giving you a single model to use, we just had you compare and evaluate two differing models of charge. What is the value, if any, in taking this approach?