

Electrostatic Mixed-Up Tapes: Part 3



Name(s):

Part III: Tape Tangle

You will need:

- A tape dispenser containing a roll of clear, sticky tape
- A smooth surface like a table or a craft table, cleaned and dried
- A marker

Directions:

1. Quickly pull off a piece of tape about 6 inches long.
2. Fold about $\frac{1}{2}$ " of one end of the tape over so that the sticky sides stick together. You should now have a "tab" on one end that won't stick to anything else.
3. Press the tape, sticky side down, onto the table so that it is nice and flat.
4. This will be the "Bottom" tape. Use the marker to label the tab with a "B".
5. Pull off another 6 inch piece of tape and make a tab on it.
6. This will be the "Top" tape. Use the marker to label the tab with a "T".
7. Carefully lay the Top Tape, sticky side down, directly on top of the Bottom Tape. Both tabs should be on the same side.
8. Press the Top Tape down to make sure it is smooth and there are no bumps and wrinkles.
9. Hold both tabs and quickly pull the tape off of the table as if it were a single piece of tape.

Make a Prediction!

What do you think will happen now if you bring the tape close to your hand? Explain.

I think...

Because...

Try it. What Happened?

I noticed that...

1. Put one tab in each hand.
2. Quickly pull the Top Tape off of the Bottom Tape.
3. Stick the Top and Bottom Tapes on the edge of the table so that the end without the tab is hanging down and the tapes are not touching one another.

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Make a Prediction!

What do you think will happen now if you bring the Top Tape close to your hand? What about the Bottom Tape? Explain.

| Top Tape Prediction | Bottom Tape Prediction |
|-------------------------------------|--|
| <i>I think the Top Tape will...</i> | <i>I think the Bottom Tape will...</i> |
| | |
| <i>Because...</i> | <i>Because...</i> |
| | |

Try it. What Happened?

| Top Tape Observation | Bottom Tape Observation |
|---------------------------------------|--|
| <i>I noticed that the Top Tape...</i> | <i>I noticed that the Bottom Tape...</i> |
| | |

1. Carefully pick up the Top and Bottom Tapes so that you have one tab in each hand and the smooth sides of the tape are facing each other.

What do you think will happen if you try to bring the Top and Bottom Tapes close together? Explain.

If I bring the Top and Bottom Tapes close together, I think...

Because...

1. Slowly bring the smooth side of the Top Tape towards the smooth side of the Bottom Tape.
2. Then try the same thing using the sticky sides.

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Try it. What Happened?

Record your observations on the table.

| Top Table side | Bottom Table side | What I observed |
|----------------|-------------------|-----------------|
| Smooth | Smooth | |
| Sticky | Sticky | |

How would you explain your observations?

I would explain my observations by...

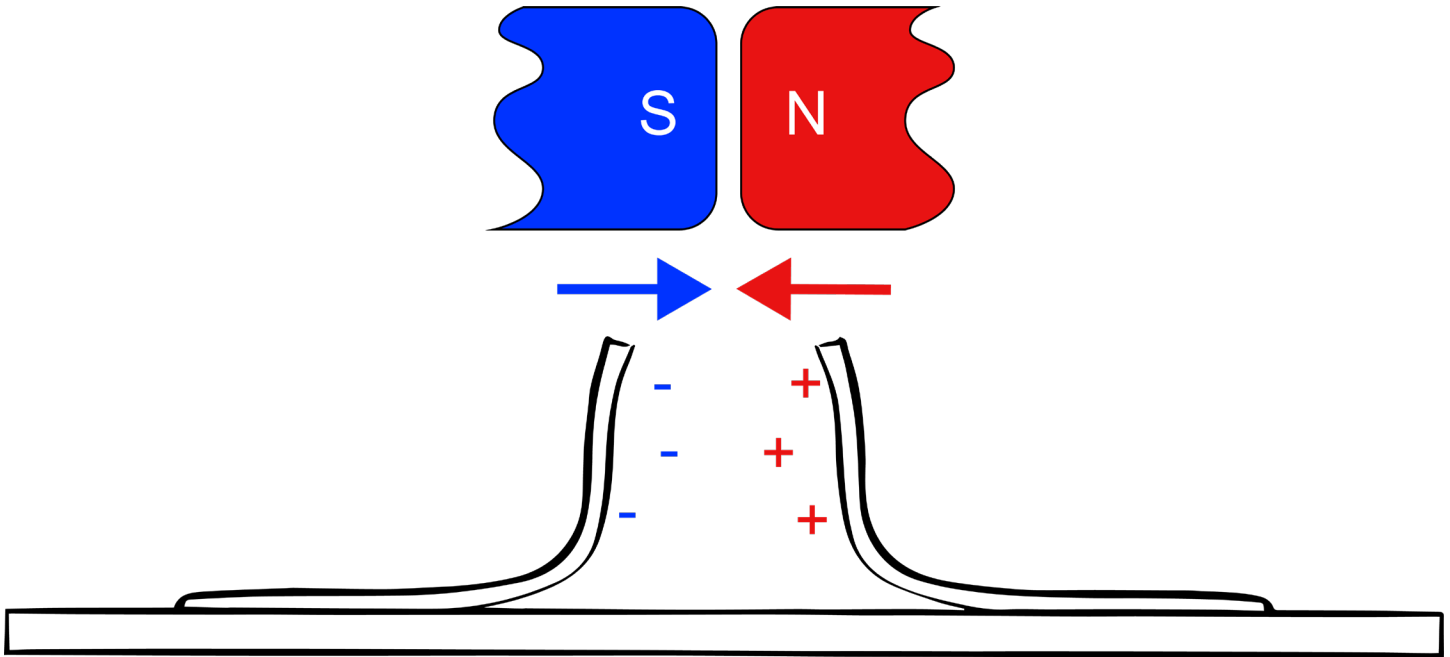
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Electrostatic Mixed-Up Tapes: Part 3



What's Going On Here?

When you pulled the Top and Bottom Tapes together off the table, they acted like a single charged object to attract your uncharged hand. However, when you pulled the Top and Bottom Tapes apart, you ended up with two charged objects. More importantly, you ended up with two objects that had opposite charges. Opposite charges attract, just like opposite poles did in Lesson 10. The question now is, which tape has a positive charge and which has a negative charge?



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