Introduction to Naming Ionic Compounds

Background
Ionic compounds consist of a cation (positively charged particle) and an anion (negatively charged particle). These compounds can be represented by either names or formulas using element symbols and subscripts. A systematic set of rules exists for naming and writing chemical formulas so that all scientists are consistent. This activity serves as an introduction to some of those rules.

Pre-lab Questions
1. What is the difference between a covalently-bonded (molecular) compound and an ionic compound?
2. What portion of the periodic table tends to form cations? Anions?

Problem
What patterns exist in naming ionic compounds?

Materials
- Periodic Table
- Ionic Compound Name Cards
- Ionic Compound Formula Cards
- Extension Naming/Formula Cards (Optional)

Procedure
Part A:
1. After receiving a set of Ionic Compound Name Cards, group them into two sensible categories of 3 cards each and discuss a heading for each category.
2. When instructed, rearrange the cards into two different groups of 3 cards each using different category headings.
3. Share and analyze the validity of each group’s categorizations.

Part B:
1. After receiving a set of Ionic Compound Formula Cards, match each one with a name. Raise your hand when finished and the teacher will check the accuracy.
2. If the teacher says there are incorrect matches, rearrange them once more. Raise your hand to get feedback.
3. Write the names and matching formulas below.
4. Summarize any patterns observed between each name and formula below:

<table>
<thead>
<tr>
<th>Name</th>
<th>Formula</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Part C: (optional)
1. After receiving a set of Extension Naming and Formula Cards, match each one with a name. Raise your hand when finished and the teacher will check the accuracy.
2. Write the names and formulas below.

<table>
<thead>
<tr>
<th>Name</th>
<th>Formula</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3. What contradictions can you find to the early summary statements? Describe them below:

**Conclusion**
Write a one or two sentence summary of the general patterns that exist in naming ionic compounds based on the activity.