Handout M03-1: Why Does the Match Go Out?

Name: ________________________

Organize your team. Change jobs if you repeat the experiment. On a team of 4:

- The **Observer** should light the matches.
- The **Timer** should measure the duration of burning (in seconds).
- The **Measurer** should measure the length of flames.
- The **Recorder** should record data.

**Steps:**

1. Place the metal tray on a heat-resistant surface. Set the support stand in the center of the metal tray. Attach the clamp to the stand. Attach the cross-piece with alligator clips to the clamp, so it forms a "+" with the stand.
2. Clip a wooden match to each alligator clip. Attach one match so the ignitable tip points straight up. Attach the other so the ignitable tip points down.
3. Light a third match and use it to ignite the downward-pointing match. Record your observations (A and B in first column below). Always dispose of burned matches in the ashtray or on the metal tray.
4. Use another match to ignite the upward-pointing match. Record your observations (A and B in second column below).
5. You may repeat the experiment to get more observations. **If you do, use the oven mitt to handle the alligator clips.** If you forget, you will quickly learn about conduction.
6. Answer question C for the downward-pointing match, then for the upward-pointing match.
7. **Clean up:** Make sure all burned materials and matches are out before you dispose of them – that is, there is no smoke and no heat being released. Use a metal trash can without a plastic liner. If in doubt, dump them in a bucket of water before putting them in the trash.

<table>
<thead>
<tr>
<th>Match is pointing...</th>
<th>Down</th>
<th>Up</th>
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<tbody>
<tr>
<td>A. With the ruler near the flame <strong>but not in it</strong>, measure the flame length (centimeters). Record up to 3 observations.</td>
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<tr>
<td>B. How long did the match burn (seconds)? Record up to 3 observations.</td>
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<tr>
<td>C. Use the Fire Triangle to explain why the match went out.</td>
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