Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period \_\_\_\_\_\_\_

**Investigating the Effects of Colliding Air Masses**

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| **QUESTION/PURPOSE:** **Manipulated Variable (MV)** **Responding Variable(RV)**What effect does the difference in temperature of two air masses have on the motion of the air masses? |
| **HYPOTHESIS (IF, THEN, BECAUSE)** **:** **Manipulated Variable (MV)** **Scientific Reason (WHY)** **Responding Variable (RV)** |
| **Manipulated Variable Units** | **Responding Variable Units** | **Controlled Variable(s) Units** |
| **PROCEDURES: Manipulated Variable (MV)** **Responding Variable (RV)** **Controlled Variable(s)** **Repeated Trials** **Logical Steps**Step 1. What do you think will happen when cold, moist air meets cold moist air? What do you think will happen when warm moist air meets warm moist air? What do you think will happen when cold moist air meets hot dry air? Discuss your predictions with your group. Step 2. Record what you think will happen in the PREDICTIONS column in the data table.Step 3. Remember to keep the convection tubes connected at all times.Step 4. DO NOT record any temperature changes in this lesson.Step 5. Introduce smoke into the top of the cylinder.Step 6. As you conduct the investigation, discuss your observations with your group as you work, and record them on your student sheet. Use your flashlight to see the smoke.Step 7. When you have finished testing all three conditions, clean up. Give the punk stick to your teacher. | **MATERIALS Measuring Device****\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_****\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_****\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_****\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_****\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_****\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_****\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_****\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_****\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_****\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_****\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_****\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** |

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| **DATA TABLE: Title (Manipulated vs. Responding) Trials** **Units Averages**  **Predictions and Observations**

|  |  |  |
| --- | --- | --- |
| **Type of Both Air Masses** | **Predictions** | **Observations** |
| **Cold and Cold** |  |  |
| **Warm and Warm** |  |  |
| **Hot and Cold** |  |  |

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**Answer the following questions.** (Your explanations should include density)

1. **What did you observe when two tubes containing air with the same temperature and humidity conditions were connected? Why do you think this happened?**
2. **What did you observe when two tubes containing air with different temperatures and humidity conditions were connected? Why do you think this happened?**
3. **On the basis of your results from the this and past labs, under what conditions do you think winds and rotating storms might form?**