

Analysis (H4)

- **1. What did you observe when both tubes contained air with the same temperature. Why do you think this happened?**
- The air did not move much between the tubes, since the general circulation of the air was weak.
- This happened because the temperatures were the same.
- This means there was little to no difference in air pressure
- This resulted in little movement of the air masses.

Analysis (H4)

- **2. Which type of weather front did you observe between the tubes when both contained ice?**
- I observed a stationary front because neither air mass overtook the other.
- I observed an occluded front because two cold air masses came together and removed a warmer air mass.
 - *Technically this isn't stationary because they're the same temperature. But, for the purpose of this question, you want to recognize that the air didn't move much, just like in a stationary front.*

Analysis (H4)

- **3. What did you observe when the tubes contained air with different temperatures? Why do you think this happened?**
- The air moved quickly throughout both tubes.
- Air in the cold tube sank and moved through the plastic connecting tube to replace the rising, warm air near the candle.
- When the cold air got warmer, it rose as well. This is the result of different air pressures (colder = high, warmer = low).

Analysis (H4)

- **4. What type of weather front would you associate with the tubes with different temperatures?**
- Cold front. The cold air mass from the ice side was moving into the warm air mass.

Analysis (H4)

- **5. Based on your results from Lessons 4 and 5, where and how do you think winds and rotating storms might form?**
- When air masses of different temperature and humidity conditions meet, turbulent air circulation and unsettled weather are the result.
- The movement of the air is circulation and causes smaller circular movements of air within it.

Analysis (H4)

- **6. Where in the US do you think air masses with different temperature and humidity conditions might meet?**
- These air masses are likely to meet in the central plains of the US.
- The Rocky and Appalachian mountains act as a funnel for moving cold, dry air in from the north and warm, humid air in from the south.

Analysis (H4)

- **7. What type of weather do you think might occur along a front? Why?**
- Cloudy and raining weather is most likely to form along a front.
- This is because the cold air mass will push up the warm, humid air mass.
- This causes the warm air mass to cool, causing any water vapor in the mass to condense.
- This forms clouds and possibly rain. Tada!

Analysis (H4)

- **8. Why does a sea breeze form?**
- As warm land heats the air above it, the air increases in temperature and decreases in pressure and rises. Cold air, cooled by the water, rushes in to replace the warm, rising air. This forms a convection cell. This cell generates wind known as a sea breeze as the wind comes from the sea.

Analysis (H4)

- **9. Why does a land breeze form?**
- As warm water heats the air above it, the air increases in temperature and decreases in pressure and rises. Cold air, cooled by the land, rushes in to replace the warm, rising air. This forms a convection cell. This cell generates wind known as a land breeze as the wind comes from the land.