Watching WARM & COLD Fronts Meet

Warm and cold fronts happen when warm air masses and cold air masses meet. They bring different types of storms and push under each other in different ways. In these demonstrations, you will see what happens in a warm front, a cold front, and an occluded front.

In these demonstrations, you will be using tap water and salt water, but remember that they represent warm or cool air. Remember to work over the sink or tub and wear clothes that can be stained.

Illustrate or describe what occurs in each demonstration. Include what happens when you remove the ruler and the two sides meet and what happens after the liquids have settled.

Materials:

- Warm water
- Cool water
- Salt
- Red food coloring
- Blue food coloring
- Clay
- Plastic ruler
- Shallow tray at least 2 inches deep; should fit the ruler fairly snugly inside

Warm Front

1. Put the ruler into the shallow tray and secure it with the clay.
2. Mix 4 cups of cool water with 4 drops of blue food coloring and a teaspoon of salt.
3. Mix 4 cups of warm water with 4 drops of red food coloring.
4. Pour the blue water into the right side of the tray to a depth of about one inch. Make sure the clay and ruler seal the two sides apart. Save the rest of the water for use later in the experiment.
5. Pour the red water into the left side of the tray.
6. Tilt the container slightly toward the right side and remove the ruler slowly.
7. Draw a picture of what happens as the materials meet, just after you remove the ruler. Draw another picture of the liquids after they have settled.
8. In the same boxes, write what you think the weather would have been like when the warm front moved through.

after removing the ruler

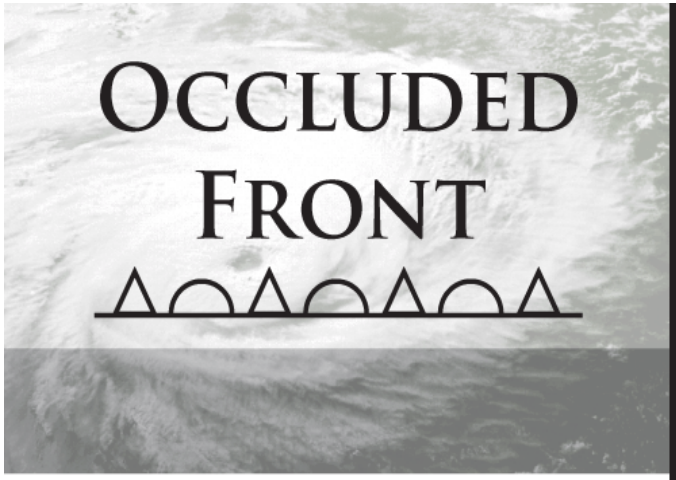
after settling

Cold Front

1. Put the ruler into the shallow tray and secure it with the clay.
2. Mix 4 cups of cool water with 4 drops of blue food coloring and a teaspoon of salt.
3. Mix 4 cups of warm water with 4 drops of red food coloring.
4. Pour the blue water into the right side of the tray to a depth of about one inch. Make sure the clay and ruler seal the two sides apart. Save the rest of the water for use later in the experiment. Pour the red water into the left side of the tray.
5. Tilt the container slightly toward the left side and remove the ruler slowly.
6. Draw a picture of what happens as the materials meet, just after you remove the ruler. Draw another picture of the liquids after they have settled.
7. In the same boxes, write what you think the weather would have been like when the cold front moved through.

after removing the ruler

after settling



Occluded Front

1. Put the ruler into the shallow tray and secure it with the clay.
2. Pour the blue water into the right side of the tray to a depth of about one inch. Make sure the clay and ruler seal the two sides apart. Save the rest of the water for use later in the experiment.
3. Pour the red water into the left side of the tray.
4. Swirl the blue water and while it is spinning, remove the ruler slowly.
5. Draw a picture of what happens as the materials meet, just after you remove the ruler. Draw another picture of the liquids after they have settled.
6. In the same boxes, write what you think the weather would have been like when the occluded front moved through.

after removing the ruler

after settling