Creating an Air Mass

Follow the steps below to create an air mass model for your YouTube video. A model is a representation of something that happens in real life.

1. Pour hot tap water (with a drop of blue food coloring mixed in) into the bottom of the clear bin. This represents a large body of water, like a lake or ocean.
2. Place the empty juice glass in the center of the clear bin. The outside of the glass will get wet, but make sure to keep the inside of the glass dry!
3. Place plastic wrap securely over the top of the clear bin, making sure that it is totally sealed! Ask your teacher for help if you need it. Note: Make sure the glass is not touching the plastic wrap.
4. The air inside the sealed bin represents one air mass. This air mass is warm and moist because of the warm water. The air surrounding the container represents another air mass outside the container. This air mass is a little cooler and dryer and is made up of the air in the room. The air mass inside the container meets the air mass on the outside of the container through the thin layer of plastic wrap.
5. Plug in the heat lamp. Shine light onto the side of the container. This keeps the air mass inside the container warm and moist.
6. Observe for 3 minutes. Record your observations on the Data Table and answer the questions below:

- Is anything happening where the two air masses meet at the plastic wrap? Is moisture starting to collect on the bottom of the plastic wrap?

- Is there anything happening with the juice glass? If so, what?

7. Now, change the air mass outside the sealed container to see how a colder air mass on the outside of the container will effect the warm moist air mass inside the container. To do this, place a baggie full of ice on top of the plastic wrap. Make sure the bag is in the center, directly over the empty juice glass. Press down gently so that the plastic wrap sags slightly over the juice glass.

8. Now, the thin layer of plastic wrap is letting the warm moist air mass inside of the container meet a cold air mass outside of the container.

9. Observe for 3 minutes. Record your observations on the data table. Then, answer the questions below:

- Is there more or less moisture on the plastic wrap? Explain what you see.

- What is happening with the juice glass?

10. Observe every 3 minutes for a total of 24 minutes, or until ice is completely melted. Record your observations after every 3 minutes on the Data Table. Answer the questions below:

- Is there more or less moisture on the plastic wrap? Explain what you see.

- What is happening with the juice glass?

11. Observe the drops of water that formed on underside of the plastic wrap. Notice that these drops formed directly beneath where the ice was sitting.

- What do these drops represent?

12. Remove the plastic wrap and look inside of the juice glass.

- Is the water blue or clear? What does the water inside the juice glass represent?

STEM CAREER ADVENTURES

Data Table

Without Ice:

Time	Observations:
3 minutes	

With Ice:

Time	Observations:
3 minutes	
6 minutes	
9 minutes	
12 minutes	
15 minutes	
18 minutes	
21 minutes	
24 minutes	

Teacher Key

6. Observe for 3 minutes and answer the questions below:

- Is anything happening where the two air masses meet at the plastic wrap? Is moisture starting to collect on the bottom of the plastic wrap?
  - Tiny drops of water are forming on the plastic wrap.
- Is there anything happening with the juice glass? If so, what?
  - Nothing is happening with the juice glass.

9. Observe for 3 minutes. Record your observations on the data table. Then, answer the questions below:

- Is there more or less moisture on the plastic wrap? Explain what you see.
  - More tiny drops of water are forming on the plastic wrap. The drops are forming together to form larger drops. The larger drops are running towards the center of the plastic wrap where the ice is making it sag (due to gravity, water is running to lowest point). When the drops get big enough they are dripping into the juice glass.
- **What is happening with the juice glass?**
  - Drops of water are dropping into the juice glass from the water that is collecting on the bottom side of the plastic wrap.

10. Observe every 3 minutes for a total of 24 minutes, or until ice is completely melted. Record your observations after every 3 minutes on the data table. Answer the questions below:

- Is there more or less moisture on the plastic wrap? Explain what you see.
  - More water is collecting on the bottom of the plastic wrap and running to the center where the plastic is at its lowest point.
- What is happening with the juice glass?
  - Yes, drops of water are falling from the bottom of the plastic wrap into the glass.

11. Observe the drops of water that formed on underside of the plastic wrap. Notice that these drops formed directly beneath where the ice was sitting.

- What do these drops represent?
  - The drops represent rain. Rain falls when water from Earth evaporates, rises into the air, forms clouds, dropplets in clouds come together to form larger drops, when they are heavy enough, gravity pulls the drops down to Earth as rain

12. Remove the plastic wrap and look inside of the juice glass.

- Is the water blue or clear? What does the water inside the juice glass represent?
  - The water inside the glass is clear and represent clean water on Earth's surface that has fallen as rain. When the warm blue water gets warm, only the water evaporates, leaving the blue food coloring behind. When the water falls as rain, it is clear, clean water.

Creating a Youtube Video

Follow the steps on this handout to write the script for your Youtube video.

Step One: Create a Team Name

- Create a team name for your group. This name should include "meteorologists" so that viewers know that your team consists of meteorologists.

- Team Name: _____

Step Two: Create an Introduction

- The introduction for your video should explain the purpose for recording the video.
- Example: "We are here today to explain air masses and their effect on weather."
- Write your introduction below:

_____

_____

_____

_____

_____

_____

_____

Step Three: Show the Air Mass Model

- Write what you will say to explain the model of an air mass that your group has created.
- Make sure to explain the effect that air masses have on weather.

Step Four: Write a Closing

- Write a catchy closing for your video.
- The closing should wrap up everything that you discussed in the video.

Step 5: Record your video!