Name: _____

Air Masses, Climate, and Weather

Meteorologists are scientists who study the weather and climate in an area. Read the article attached about meteorologists. Then, answer the questions below.

1. Why does Mars have different seasons just like Earth?

2. What type of data does a weather balloon collect?

3. What are air masses?

4. What happens if an air mass doesn't have the same temperature and humidity as another air mass close by?

5. Imagine that you are a forensic meteorologist and have been called to testify in court. Read about the case on the next page. Should John have to pay the medical bills for the injured runner? Use your knowledge of air masses to back up your decision.

Name: _____

Air Masses, Climate, and Weather

The Case of the Slippery Sidewalk

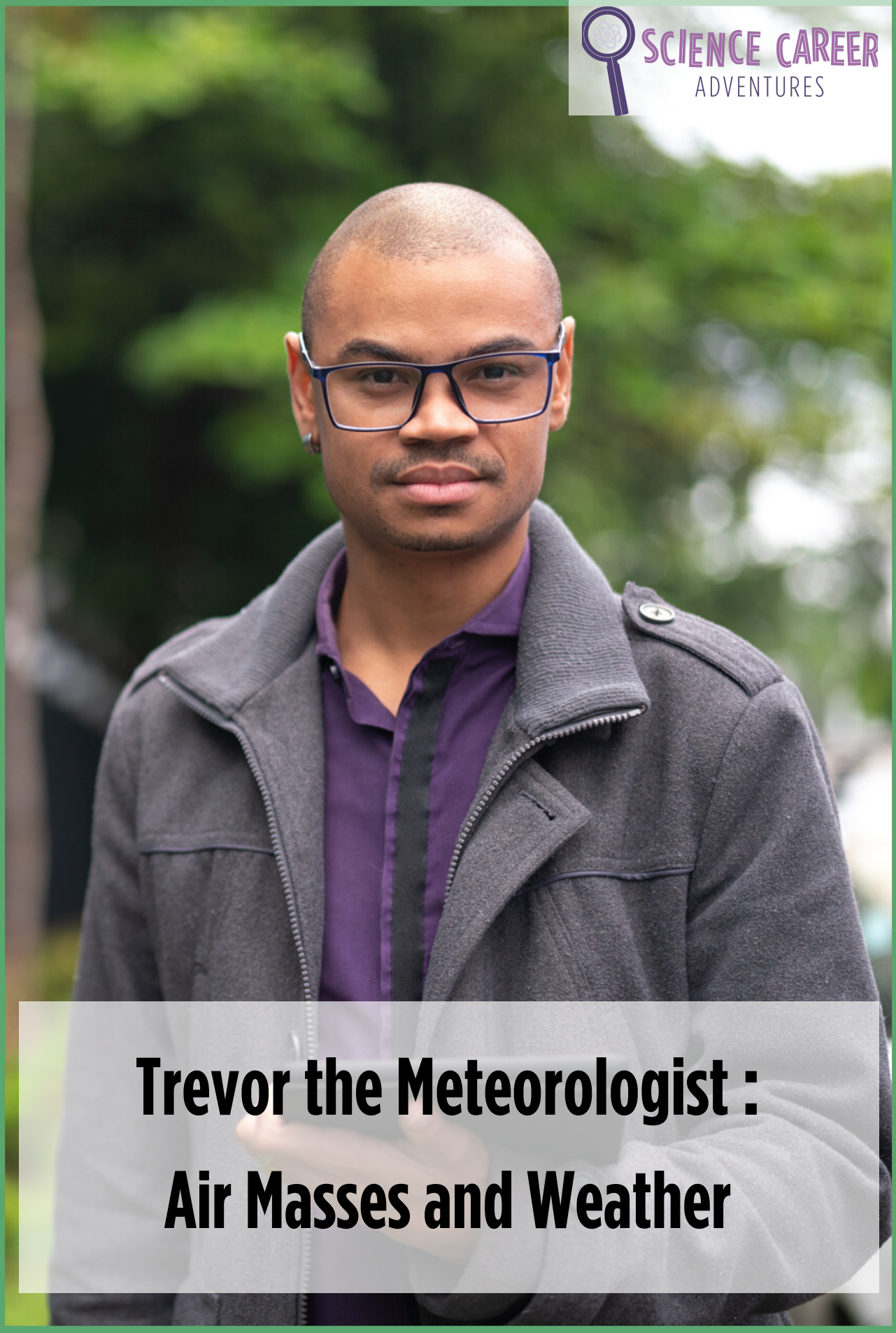
John sells snow cones at a stand in the park. Every night, John cleans out his ice maker so it can make fresh ice overnight. On Saturday morning, joggers were running through the park. One of the joggers slipped on a puddle of water near John's stand and broke their arm. The jogger wants John to pay all the medical bills. He claims the puddle of water was from his cart. John claims that there was a sudden down pour the night before, which left puddles of water outside. John claims the jogger slipped in a puddle. Should John have to pay the medical bills?

Use the information below about air masses to figure out if John should have to pay the medical bills due to puddles created from his cart!

Thursday: hot and dry air mass over area
Friday: hot and humid air mass over area
Friday night: cold air mass moves into area
Saturday: cold air mass stays over area

Need help?
Remember that changes in air masses causes changes in weather.

On the lines below, write out your decision. Explain whether John should have to pay for the medical bills. Be sure to describe the science behind air masses to back up your decision.



Trevor the Meteorologist : Air Masses and Weather

Who is Trevor?

Hi, I'm Trevor! I am a meteorologist. A meteorologist studies the weather and climate in an area.

Climate describes the weather in a certain location over an extended period of time. For example, the Bahamas has a warm, wet climate, while Antarctica has a cold climate.

DID YOU KNOW?

Only 7% of meteorologists work in television broadcasting. Most people think that all meteorologists work on weather channels. However, this is not true! Most meteorologists work for the government or at a university doing research.

Reasons I Love My Job

Curious about meteorologists?
Check out three reasons I love my job!

1. Using Cool Equipment

As a meteorologist, I use a lot of equipment! Here are some examples!

Weather Satellites:
A satellite is a device that monitors Earth's weather and climate from space. The device collects data that meteorologists and other scientists can analyze. For example, weather satellites collect data on forest fires and tornadoes.

Weather Balloons:
A weather balloon is an instrument that is attached to a balloon. Weather balloons float into the sky and collect data about temperature, wind, and humidity.

Fun Fact:

The National Weather Service has directions on their website about what to do if you find a weather balloon on the ground! Each weather balloon has a small mailbag included that you can use to mail back the balloon! Learn more at https://www.weather.gov/upperair/radiosonde.

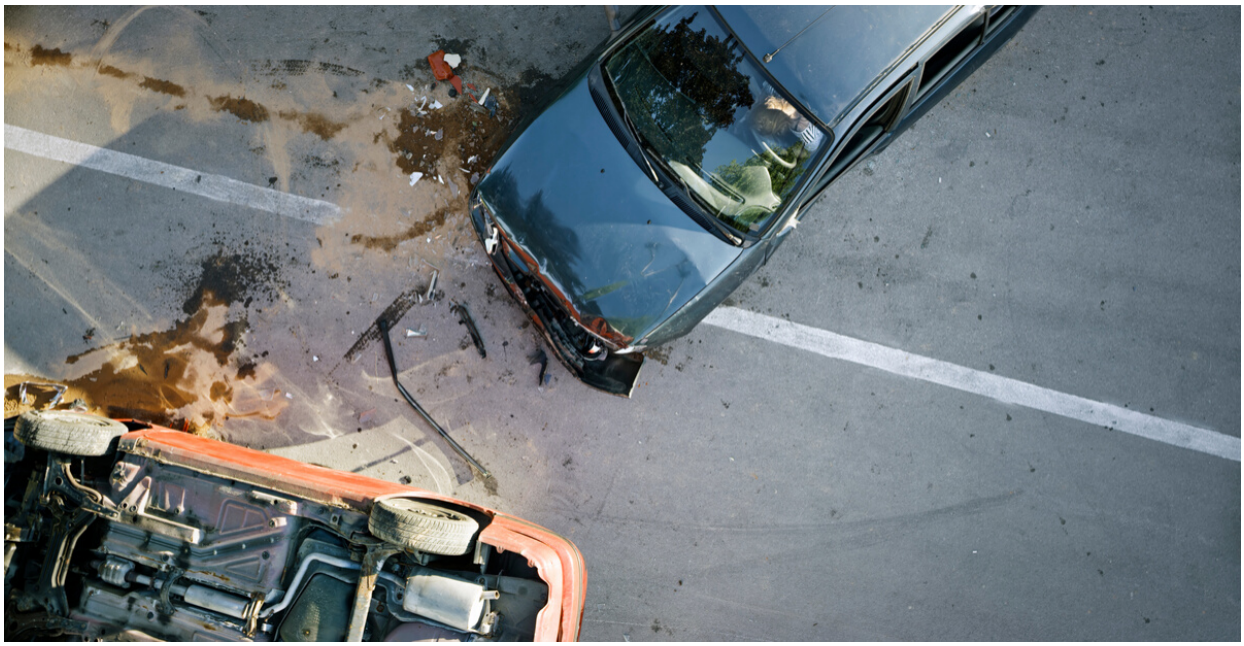
Reasons I Love My Job

2. Investigating Crimes

Did you know that meteorologists are like weather detectives? Some meteorologists specialize in a field called forensic meteorology. A forensic meteorologist figures out what the weather was like at a certain point in time. Severe weather can cause accidents and damages to people's property, like their homes or cars. A forensic meteorologist might be contacted by a lawyer or police officer who is investigating an accident, like a roof caving in on a house. The meteorologist might be called to testify in court about whether severe weather caused the roof to cave in.

Here is an example!

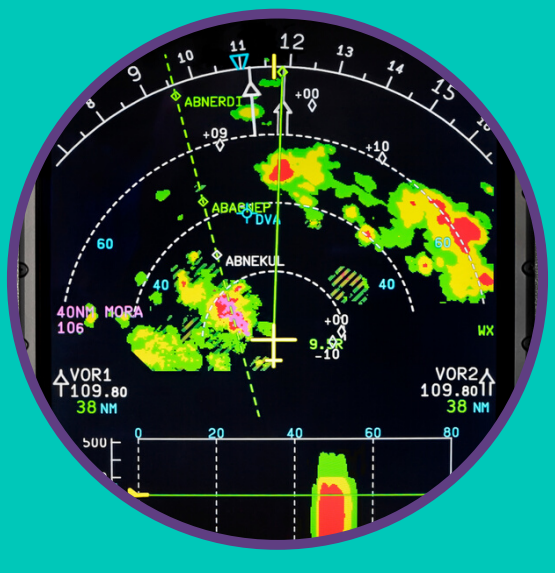
Recently, I was asked by the California State Police to investigate a car accident that occurred in San Bernadino. The driver of the car claimed that the weather was so severe that he couldn't see, which made him crash the car. I had to investigate the accident and figure out if the weather was the cause of the car crash.



Reasons I Love My Job

To investigate the accident, I used my knowledge about air masses. Air masses are large bundles of air in the atmosphere. Air masses are made of air that is approximately the same temperature and humidity, which is the amount of moisture in the air. As air masses move around each other and mix together, there can be a change in weather.

After looking at weather data from the week of the accident, I saw that a cold dry air mass from Alaska was moving toward California. It collided with a warmer air mass on the night of the accident and created a very severe thunderstorm.



This storm would have brought extreme winds, heavy rain and hail, and maybe even a tornado. Even the best drivers would struggle in weather like this! In the report that I gave to the California State Police, I said that the weather most likely caused the accident.

Reasons I Love My Job

3. Researching Weather on Other Planets

Some meteorologists learn about weather on other planets, like Mars. How cool is that? Meteorologists are trying to figure out whether humans would be able to live on Mars one day.

So far, meteorologists have found out that Mars has seasons, just like Earth. This is because Mars sits on a tilt in comparison to the sun, so different parts of the planet are heated at different times. However, this uneven heating can lead to very powerful winds! The winds cause dust storms, where dust can blow 24 miles high and take weeks to settle!