Name & Surname: _____ Class: _____ Date: _____

Air Masses Meet

Collect data to explain weather change

About 40 minutes Level ★★★☆☆

Air masses and fronts

An **air mass** is a huge body of air, thousands of miles wide, with almost the same temperature and humidity throughout. It forms over a **source region** where air sits still for days and takes on the heat or cold and wetness or dryness below.

- Maritime air forms over water and is humid. Continental air forms over land and is dry.
- Tropical air forms in warm latitudes and is warm. Polar air forms in cold latitudes and is cold. Arctic air is very cold and dry.
- Common types over the United States are maritime tropical (mT) warm and humid from the south, continental polar (cP) cold and dry from Canada, and continental tropical (cT) hot and dry from the southwest.
- The border where two air masses meet is called a front. Cold fronts are blue lines with triangles. Warm fronts are red lines with half-circles. Fronts often bring clouds, wind shifts, and precipitation.
- Meteorologists collect data — temperature in °F, humidity, air pressure, wind direction and speed in mph, and precipitation — to track air masses and forecast change.



TASK A

/3

Finish the talk using what you know about air masses and fronts.

Student A Our class data shows 76°F and humid yesterday, but 52°F and dry today. What happened?

Student B .....

.....

Student A So the line where they met on the weather map was what?

Student B .....

.....

Student A How could our data prove it was a cold front, and what should we keep measuring?

Student B .....

.....

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Track A Cold Front

Draw how data shows a front passing.

Key words

air mass: huge body of air with similar temperature and humidity

maritime: forms over water, so humid

tropical: forms in warm latitudes, so warm

front: border where two air masses meet

source region: large area where an air mass forms

continental: forms over land, so dry

polar: forms in cold latitudes, so cold

TASK B

Draw and label each step to show data as evidence of moving air.

1

Day 1 morning: Warm humid mT air sits over town. Thermometer reads 78°F. Draw instruments and sky.

2

Day 1 afternoon: Cold cP air moves south at 25 to 30 mph. Wind shifts and clouds build along the front. Draw the front line.

3

Day 2 morning: Cold front passes. Temperature falls to 56°F, pressure rises, rain showers fall. Draw what changed.

4

Day 2 afternoon: Cold dry air stays. Sky clears. Write your claim: which air mass won and what data proves it?

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Fact Or Opinion

Tell checked evidence from what someone thinks.

TASK C

/7

Tick fact or opinion for each claim about air masses. Then explain one choice.

Statement	Fact	Opinion
Maritime air masses form over water and are more humid than continental air masses.		
Continental polar air in winter can bring daytime temperatures below 32°F in northern states.		
Cold fronts can move about 25 to 30 mph and are shown in blue with triangles.		
Warm fronts happen when warm air replaces colder air and can bring steady precipitation.		
Cold fronts are scarier than warm fronts, so everyone prefers warm fronts.		
The best weather is warm and sunny, so tropical air masses are the best.		

How can you tell that one of them is an opinion?

.....

.....

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Check Your Forecast

Show what you can prove about weather change.

TASK D Example done for you /3

Tick the best answer using your data sense.

1. **What is an air mass?**
   - [x] A huge body of air with similar temperature and humidity throughout
   - [ ] A narrow tornado funnel that touches the ground
   - [ ] A daily tide caused by the moon
2. **Which pair correctly names an air mass by source?**
   - [ ] Continental polar — cold and dry from land in the north
   - [ ] Maritime tropical — cold and dry from land in the north
   - [ ] Continental polar — warm and humid from tropical ocean
3. **On a weather map, a blue line with triangles shows a front that is**
   - [ ] a cold front where cold air is replacing warm air
   - [ ] a warm front where warm air is replacing cold air
   - [ ] a jet stream high in the atmosphere
4. **Which data set is best evidence that a cold front passed yesterday?**
   - [ ] Temperature fell from 75°F to 52°F, wind shifted, pressure rose, and rain fell
   - [ ] Temperature stayed 70°F, wind stayed calm, and no rain fell for a week
   - [ ] Temperature rose slowly over three months from winter to spring

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Air Masses Meet

TASK E

/2

Two students made mistakes about fronts. Spot and fix them.



Student A

A front is where air mixes inside one air mass, so weather stays the same.

What mistake did Student A make? Write the correct fact.



Student B

Maritime polar air is hot and dry because it forms over land near the equator.

What mistake did Student B make? Write the correct fact.

How did I do?

Circle a face for each line.

I can describe air masses by temperature, humidity, and source.	☹	😐	☺
I can explain how fronts cause weather changes.	☹	😐	☺
I can use weather data as evidence for air mass movement.	☹	😐	☺

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Answer sheet: Air Masses Meet

Task A

1. Student B: A cold polar air mass moved in and pushed the warm tropical air out.
2. Student B: A front, the border where two different air masses meet. This one was a cold front.
3. Student B: Temperature fell fast, wind shifted, pressure rose, and rain fell. Keep measuring temperature, humidity, pressure, wind, and precipitation.

Task B

Answers will vary.

Task C

1. Fact
2. Fact
3. Fact
4. Fact
5. Opinion
6. Opinion

Task D

1. a) A huge body of air with similar temperature and humidity throughout
2. a) Continental polar — cold and dry from land in the north
3. a) a cold front where cold air is replacing warm air
4. a) Temperature fell from 75°F to 52°F, wind shifted, pressure rose, and rain fell

Task E

1. Student A: Wrong because a front is the border between two different air masses; that clash causes clouds, wind shifts, and temperature change, not steady weather.
2. Student B: Wrong on both parts; maritime means it forms over water so it is humid, and polar means it forms in cold latitudes so it is cold, not hot and dry like continental tropical air.

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