THE STANDARD

Interactions of Air Masses

Collect data to provide evidence for how the motions and complex interactions of air masses result in changes in weather conditions.

ANCHORING PHENOMENON

The Sudden Afternoon Thunderstorm

A hot humid morning. Clear skies, maybe a few puffy clouds. By 3 p.m. the clouds are towering, dark on the bottom, and lightning is cracking. By 5 p.m. it's pouring. By 7 p.m. the sky is clear again and the air feels cooler and lighter. Same day, totally different weather, no warning unless you were watching the data. Students will keep circling back to this all week as they learn what was actually happening above their heads.

DRIVING QUESTION

"What was the atmosphere doing this morning that we couldn't see, but that guaranteed this storm by afternoon?"

INVESTIGATIVE 1

The Calm Before the Storm

Right before a severe thunderstorm or tornado, the wind often dies down completely. Birds stop singing. The light turns greenish or yellow. People who live through tornadoes describe the same eerie quiet again and again. Use this one to sharpen the pressure-and-air-movement lens the anchor is pushing on: the calm isn't random, it's what happens when air is being pulled upward into a developing storm.

DRIVING QUESTION

"Why does it feel calm right before the worst part of the storm?"

INVESTIGATIVE 2

Citrus-Killing Cold in Florida

Every few years, a hard freeze hits Florida or south Texas and wipes out orange or grapefruit crops. Florida isn't supposed to freeze. The reason is an Arctic air mass that has slid all the way south from Canada, riding through the middle of the country and reaching the Gulf Coast. Same kind of change as the anchor, only on a continental scale: a moving air mass shows up where you didn't expect it and the weather changes hard.

DRIVING QUESTION

"How can a freeze from Canada reach Florida, and why doesn't it happen every winter?"