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.

DCI — DISCIPLINARY CORE IDEA

ESS2.C · The Roles of Water in Earth's Surface Processes

> *The complex patterns of the changes and the movement of water in the atmosphere, determined by winds, landforms, and ocean temperatures and currents, are major determinants of local weather patterns.*

Air doesn't just sit there. Huge bodies of air (air masses) form over oceans or continents, pick up the temperature and moisture of whatever they sit above, then move. When two different air masses meet, weather happens at the boundary. Add in pressure differences, and you get wind, clouds, rain, and storms. **The atmosphere is a system with patterns, but the patterns aren't perfectly predictable, which is why forecasts come in percentages.**

SEP — SCIENCE & ENGINEERING PRACTICE

Planning and Carrying Out Investigations

> *Collect data to produce data to serve as the basis for evidence to answer scientific questions or test design solutions under a range of conditions.*

Students aren't memorizing front symbols. They're collecting weather data over time and using it to back up a claim. The investigation is the point. Temperature, pressure, humidity, wind. Track them. **Look for what changed when, and connect the change to what was moving through the atmosphere.**

CCC — CROSSCUTTING CONCEPT

Cause and Effect

> *Cause and effect relationships may be used to predict phenomena in natural or designed systems.*

Cause and effect runs the whole standard. A cold air mass shoves into a warm one, the warm air gets forced upward, water vapor cools and condenses, clouds and rain follow. Students trace the chain: pressure change here, weather change there. **The reasoning isn't "what happened?" It's "what caused what?"**