

# LESSON 14

## How and why does air move in the tropics?

*Adaptations for:*

**STEP 1: Develop a Model (pg. 53)**

**STEP 2: Investigate air movement across Earth's surface (pg. 54)**

**STEP 3: Record observations of the water movement (pg. 55)**

**STEP 4: Describe how and why air moves in the tropics (pg. 56)**

**STEP 5: Create a model to describe air pressure and clouds at different latitudes (pg. 57)**

### EXPLANATION:

The diagrams rely heavily on visual-spatial understanding, and the drawing tasks require precise arrow placement and controlled handwriting in small spaces. Linking the water tank demonstration to real-world atmospheric patterns needs scaffolding to support the abstract concept connections. Alternatives for verbal explanations during demonstrations or for group discussions are helpful. Participating in hands-on components of this lesson could be a challenge for some learners.

### ADAPTATIONS FOR STEP 1:

**UDL Principle:** [Multiple Means of Representation](#)

- Create enlarged diagrams and add different textures or colors to the latitude lines on the cross-section diagram of the Earth. Use colored markers (red for rising air, blue for sinking air) when drawing arrows. Create large arrow cutouts to place on the diagram instead of having students draw arrows.

### ADAPTATIONS FOR STEP 2:

**UDL Principle:** [Multiple Means of Engagement](#); [Multiple Means of Action & Expression](#)

- Create an enlarged (11" x 17"), adapted analogy table with high-contrast backgrounds and larger writing spaces (linked below). Include a word bank for answer choices. Provide multiple demonstration setups so all students can see and access the tank. Allow alternative methods for recording answers, such as typed, voice-to-text, or dictation, for students who struggle with writing or typing. Break the questions into separate chunks so students consider one idea at a time. Create discussion boards and a gallery walk to work through Step 5.

### ADAPTATIONS FOR STEP 3:

**UDL Principle:** [Multiple Means of Representation](#)

- Create colored arrows for students to label their diagrams, instead of drawing. Use foam pieces that students can manipulate to show the flow of cool and warm water in the tank.

### ADAPTATIONS FOR STEPS 4 & 5:

**UDL Principle:** [Multiple Means of Representation](#); [Multiple Means of Action & Expression](#)

- Provide alternative materials for students to use when creating their models. For example, use red sticky dots for warm, rising air and blue sticky dots for cold, sinking air on the diagram in Step 4, or use textured sticky dots to differentiate between warm and cool air. Provide printed curved arrows and large "H" and "L" labels for the diagrams.

**ADAPTED MATERIALS:**

[Lesson 14, Step 2 Adapted Analogy Table](#)

**IMPLEMENTATION NOTES:**

When drawing models, consider using partner-assisted drawing where one student directs and another draws. Encourage tactile exploration before the demonstration in Step 2; students can safely feel warm and cool water, as well as all the demonstration materials. For Step 3, provide verbal descriptions or have a classmate narrate the demonstration for students who are blind or have low vision. For Steps 4 and 5, the diagrams can be challenging to interpret because of the cross-sectional view of the Earth and the complex air movement that is represented. Allow students to describe or act out the different parts of their model instead of drawing or labeling, if that is more engaging and accessible.

**MY STUDENTS' UNIQUE NEEDS:**

My focal student has cerebral palsy affecting both fine and gross motor control, along with severe vision impairment, requiring significantly enlarged materials for any visual access. They use assistive devices, such as a wheelchair or walker, for movement throughout the classroom. Due to the combination of processing and physical challenges, this student needs extended time for all tasks, typically requiring 1.5 to 2 times the standard allotment. They require peer support for physical manipulation of materials while maintaining their autonomy in decision-making and scientific reasoning. This student benefits greatly from large-motor movements rather than fine-motor tasks, and all handouts must be blown up or zoomed in substantially to provide adequate visual access for learning.

