

GLOBAL CIRCULATION MODEL

Using the left side of the globe, draw and label the vertical circulation of the atmosphere showing where air rises (ITCZ, Polar Front) and where it subsides (Subtropical and Polar highs).¹²

On the face of the globe, indicate the the NE & SE trade winds, westerlies and polar easterlies (the 60° latitudes are shown slightly low to give you room to draw).⁶ Explain the zones in the surrounding space.¹²

ITCZ: Solar insolation at the subsolar latitude heats the ground, which heats the air, causing it to rise.

- ◆ Moisture condenses & forms rain
- ◆ Band of low pressure with clouds and rain.
- ◆ Air spreads north and south as more air rises behind it.
- ◆ Sends dry air high into the troposphere.

This is an example. Describe the other pressure zones plus the wind zones in this detail as you draw & label them on the diagram like the examples shown.

S.T. High: Around 30°N & 30°S the air that rose at the ITCZ has cooled & sinks toward the ground.

- ◆ Air is dry & dries as it falls
- ◆ Band of high pressure (arid)
- ◆ Air spreads north and south creating
Westerlies (air moving poleward)
Trades (air moving equatorward)

Polar High: About 90°N and 90°S of the ITCZ, the air aloft at the poles is extremely cold and dense, so it subsides.

- ◆ Air is dry & dries as it falls
- ◆ Arctic/Antarctic high pressure zones (arid)
- ◆ Air spreads away from poles creating Polar Easterlies (air moving poleward)

Polar Front: Convergence of poleward moving air from the S.T. Highs with equatorward moving air from poles forces air to rise.

- ◆ Air was moisturized on surface
- ◆ Rising, cooling causes condensation, precip.
- ◆ Air spreads north and south to PH and STH

