

**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).<sup>12</sup>

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).<sup>6</sup> Explain the zones in the surrounding space.<sup>12</sup>

**ITCZ:** Solar insolation at the subsolar latitude heats the ground, which heats the

- ◆ Moisture condenses & forms rain
- ◆ Band of low pressure: clouds & rain.
- ◆ Air spreads north and south as more air rises behind it.
- ◆ Air now dry air high in the transsphere

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

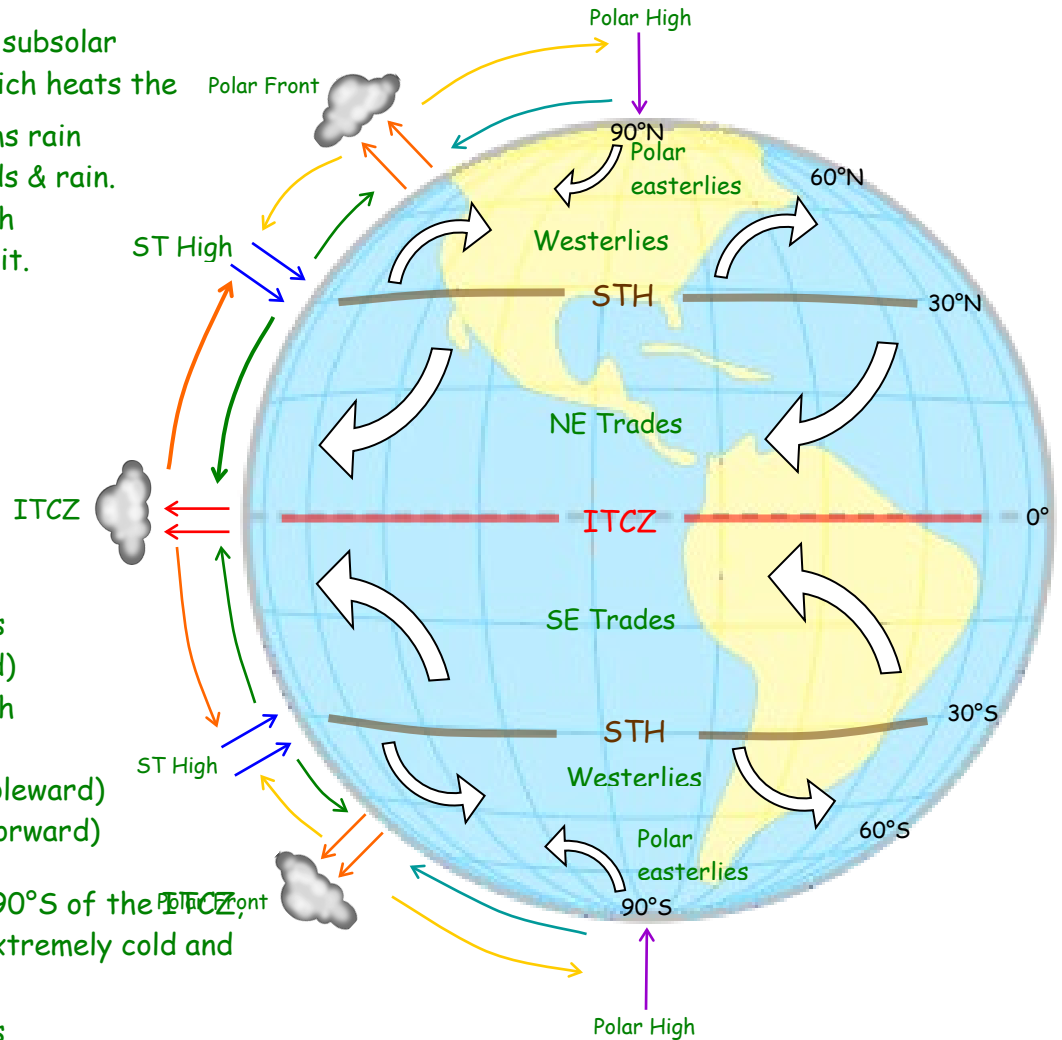
- ◆ Air is dry & dries as it falls
- ◆ Band of high pressure (arid)
- ◆ Air spreads north and south creating  
Westerlies (air moving poleward)  
Trades (air moving equatorward)

**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



**ITCZ - InterTropical Convergence Zone**  
Low pressure zone near subsolar latitude

**STH - Sub-Tropical Highs Pressure Cells**  
High pressure zones about 30° N and 30° S of ITCZ

**Polar Fronts**  
Low pressure zones about 60° N and 60° S of ITCZ

**Polar Highs**  
High pressure zones about 90° N and 90° S of ITCZ