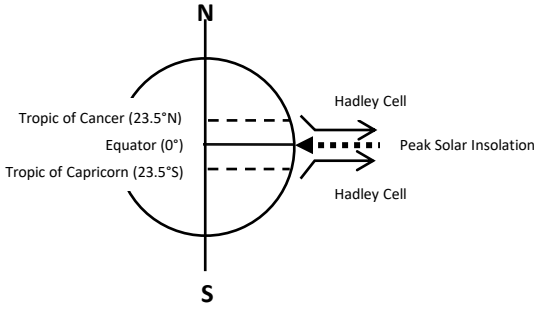
How to Explain…
The Inter Tropical Convergence Zone (ITCZ)

@Geo_Dougie

What do you want them to know?
The **ITCZ migrates** both **north** and **south** of the **Equator** depending upon **seasonality** and affects the **climate** of **places** it moves over.

What knowledge do students need for them to know this?
The Earth orbits the sun at a constant tilt of 23.5°.
The orbit at a tilt of 23.5° gives seasonality.
The relative position of the ITCZ from the Equator depends upon seasonality.
The movement of the ITCZ relative to the Equator affects the climate of places north and south of the Equator.

What prior knowledge is needed?
Global Atmospheric Circulation – particularly the convergence of the Hadley Cells/Trade Winds. **Solar insolation** being concentrated at the Equator.

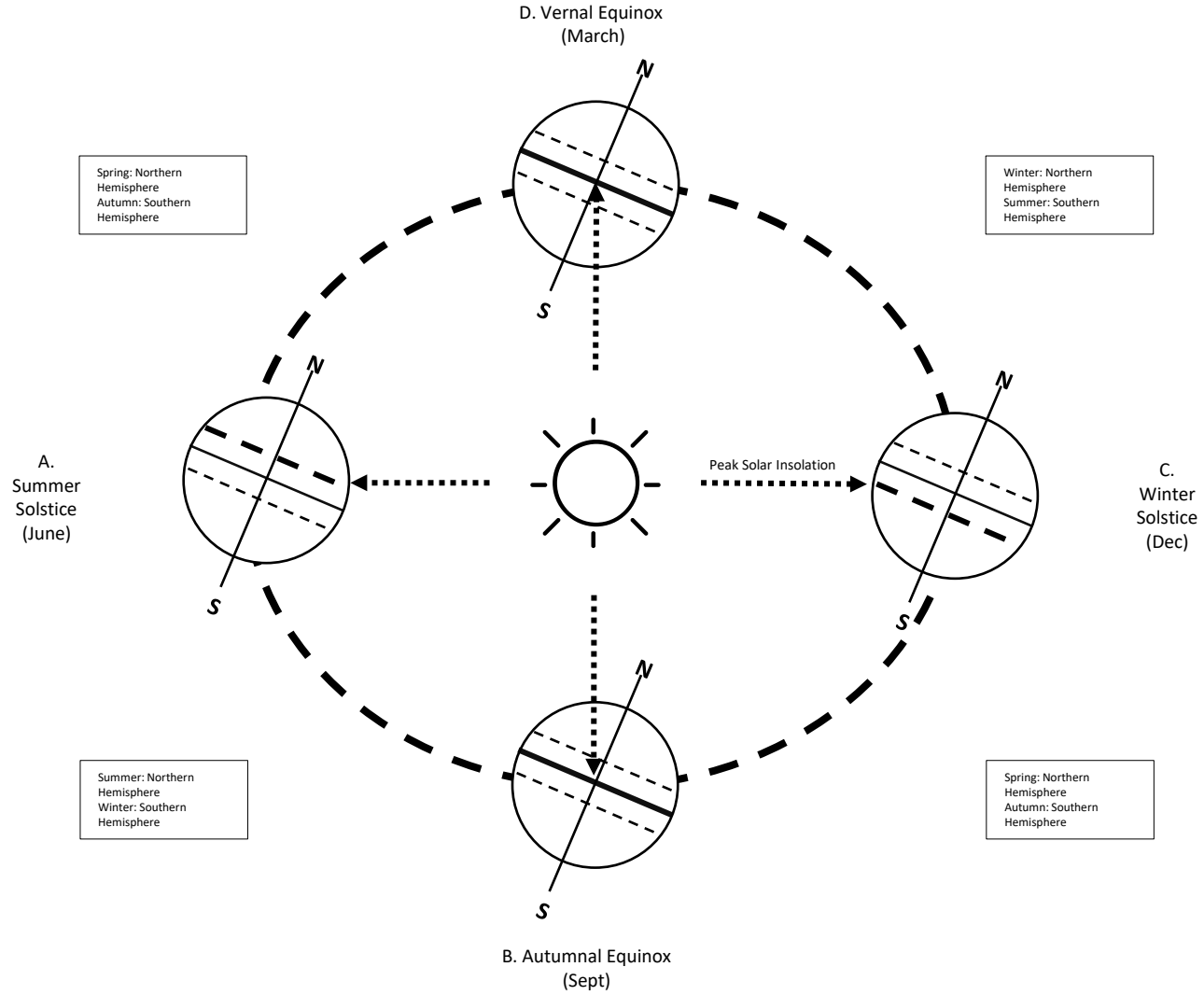


What common misconceptions do students usually hold?
The seasons are caused by the Earth 'wobbling' rather than orbiting at a constant 23.5° tilt.

How could you demonstrate this?
Use a light source or a meter ruler to illustrate the area of peak solar insolation migrating north and south of the equator as a globe orbits a student (pretending to be the sun). This could be demonstrated in the grounds of the school with the students in a circular orbit around a sun, such as the centre spot of a football field, and the globe being moved around the orbit to illustrate where the thermal equator is at different times of the year.

NOTE: There are differences in the travel of the ITCZ over land and sea. The ITCZ travels following the pattern shown here over sea. Over land, there are compounding regional factors that can affect the travel of the ITCZ over land.

The constant tilt of the Earth at 23.5° as it orbits the sun results in peak solar insolation migrating from the Equator in March to the Tropic of Cancer (23.5°N) in June. It then returns to the Equator for the Autumnal equinox in September then migrates to the Tropic of Capricorn (23.5°S) in December for the Winter Solstice.



The migration of the thermal equator as the Earth orbits the sun results in the climate of places in the tropics changing through the year as a result.