

**UNDER THE WEATHER
GRADE 8**

LESSON # 3

TITLE: TROPICS

OVERVIEW:

Students will be able to identify the location of the tropics and cause of pressure belts.

They will be able to identify the Intertropical Convergence Zone and weather patterns.

STANDARDS: 8 Forces that Shape the Earth

Benchmark - 8.8.6 Explain the relationship between density and convection currents in the ocean and atmosphere

MATERIALS NEEDED:

- Map of Pacific Ocean
- Ruler
- Pens

DURATION: 45 minutes or approximately 1 class period

PROCEDURE:

- Science on a Sphere (SOS) “Under the Weather” at Bishop Museum, or:
- Student locates the equator on a map of the Pacific ocean.
- Locate latitude 30 degrees north and latitude 30 degrees south on the map.
- Mark out these latitudes (northern and southern limits of tropics).
- Label in English and in Hawaiian
 - Tropic of Cancer / P^oai-‘olu ‘^okau
 - Tropic of Capricorn / P^oai-‘olu Hema

ASSESSMENT

Benchmark - 8.8.6 Explain the relationship between density and convection currents in the ocean and atmosphere

- formative assessment – Lesson #3 Completion of map project
- summative assessment -- Lesson #3 Completion of map project

BACKGROUND INFORMATION FOR TEACHER:

Near the equator, from about 5° north and 5° south, the northeast trade winds and southeast trade winds converge in a low-pressure zone known as the Intertropical Convergence Zone or ITCZ. Solar heating in the region forces air to rise through convection, which results in a plethora of precipitation. The ITCZ is a key component of the global circulation system.

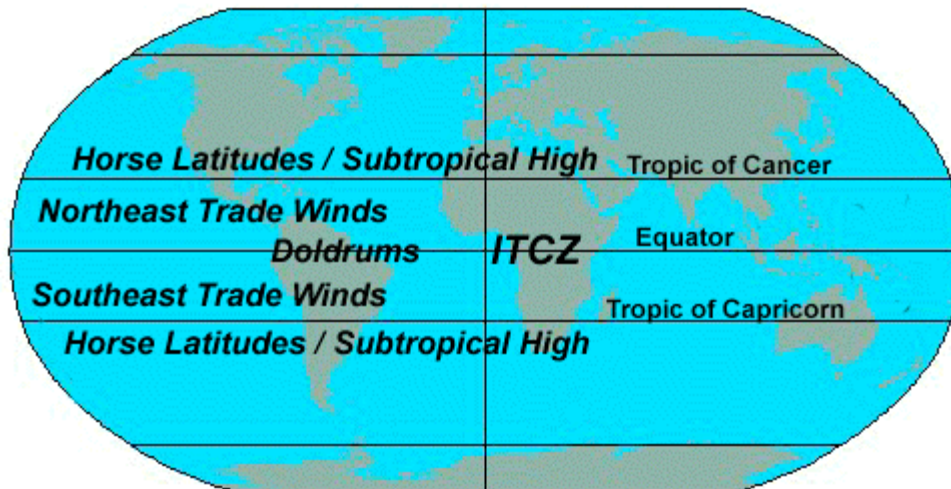
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Weather stations in the equatorial region experience precipitation up to 200 days each year, making the equatorial and ITC zones the wettest on the planet. The equatorial region lacks a dry season and is constantly hot and humid.

The location of the ITCZ varies throughout the year and while it remains near the equator, the ITCZ over land ventures farther north or south than the ITCZ over the oceans due to the variation in land temperatures. The location of the ITCZ can vary as much as 40° to 45° of latitude north or south of the equator based on the pattern of land and ocean.



In Africa, the ITCZ is located just south of the Sahel at about 10°, dumping rain on the region to the south of the desert.

The Intertropical Convergence Zone has been called the doldrums by sailors due to the lack of horizontal air movement (the air simply rises with convection). The ITCZ is also known as the Equatorial Convergence Zone or Intertropical Front.

There's a diurnal cycle to the precipitation in the ITCZ. Clouds form in the late morning and early afternoon hours and then by 3 to 4 p.m., the hottest time of the day, convective thunderstorms form and precipitation begins.

WEB RESOURCES:

ICTZ – Intertropical Convergence Zone

By Matt T. Rosenberg

<http://geography.about.com/library/weekly/aa050301a.htm?terms=trade+winds>