

World Geography

Chapter 3 Notes

Climates of the Earth

Section 1

Earth-Sun Relationship

Key Terms

- Weather – The condition of the atmosphere in one place for a short period of time.
- Climate – Weather patterns that an area typically experiences during a long period of time.

The Greenhouse Effect

- Only a small amount of the sun's heat reaches the Earth.
- Most is reflected back into space by atmosphere and the earth's surface
- Enough remains to warm the earth's land and water.
- Not all places get the same amount of heat and light
 1. Location
 2. Day and night
 3. Seasonal Change

Earth's Tilt and Rotation

- Axis – An imaginary line that runs through the center of the Earth between the North and South Pole
- Earth is tilted at a $23\frac{1}{2}$ degree angle
 1. Not every place receives the same amount of sunlight
 2. Affects temperature
- Earth rotates on its axis (Causes changes in day and night)
- Makes one complete rotation every 24 hours
- Spins East to West

Earth's Revolution

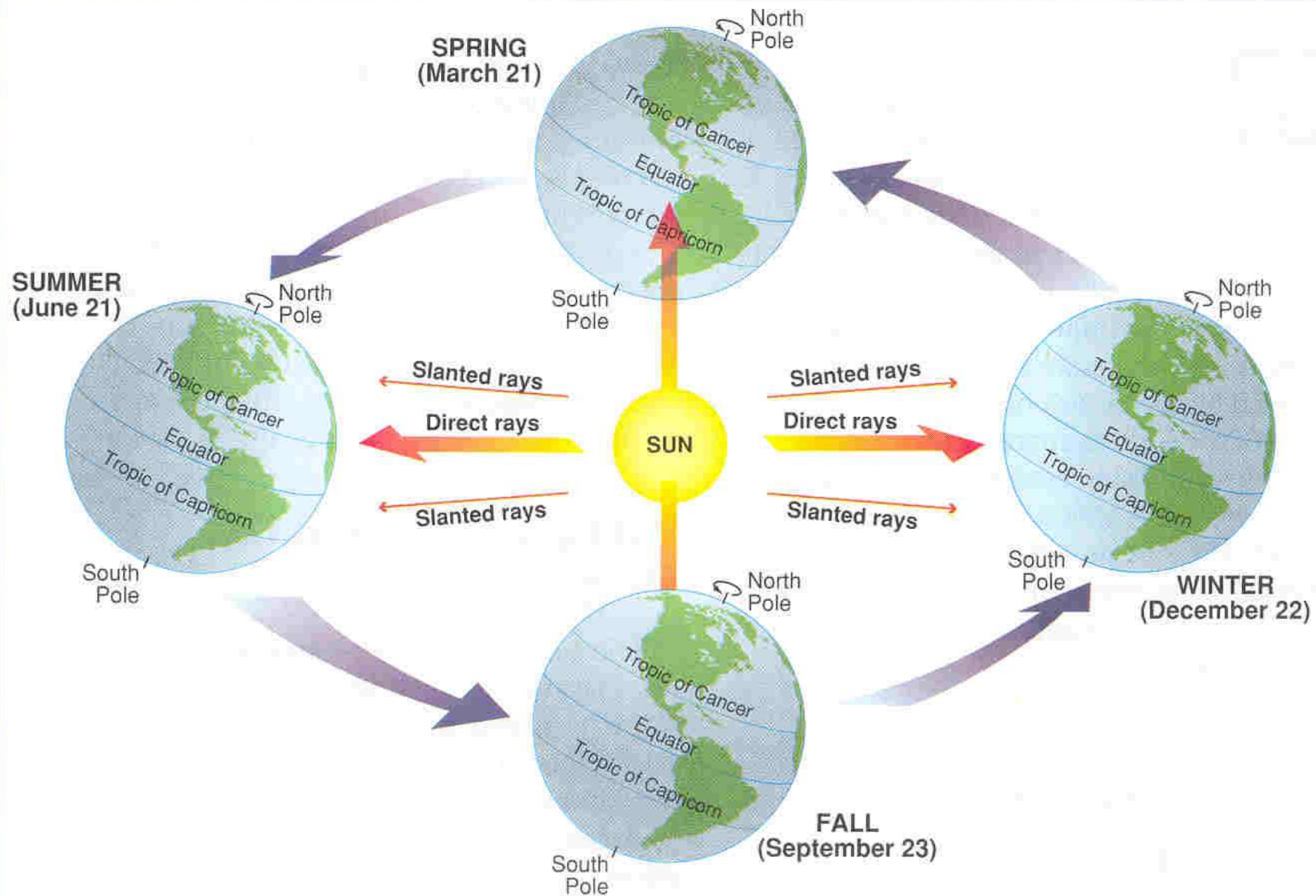
- Earth travels in an orbit around the Sun
- Revolution – One trip around the Sun
- 1. Takes $365 \frac{1}{4}$ days to complete a revolution

Earth's Revolution

Continued

- Revolution and tilt causes changing of the seasons
 1. March 21 “equinox” – Sun is directly over the Equator
 2. June 21 “Summer Solstice” – Sun is directly over the Tropic of Cancer (1st day of summer)
 3. September 23 “equinox” – Sun is directly over the Equator
 4. December 22 “Winter Solstice” – Sun is directly over the Tropic of Capricorn (1st day of winter)
- Sunlight varies the most at the Poles
 1. North Pole - Sun never sets there between March 20 and September 23
 2. Sun Never rises there between September 23 and March 20

THE SEASONS IN THE NORTHERN HEMISPHERE



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Section 2

Factors Affecting Climate

Latitude – Describes climate a general way according to certain climate zones

- Low latitudes - Area between the tropics
 1. Have very warm and hot climates
- Middle latitudes – area between the tropics and the Arctic / Antarctic Circles
 1. Receives warm air from the tropics in the summer and cold air from the high latitudes in the winter.
 2. Most places have a temperate climate
 3. Weather changes dramatically with the seasons
- High latitudes – Area between the poles and the Arctic / Antarctic circles (66 ½ degrees latitude to 90 degrees latitude)
 1. Has a generally cold climate

Factors Affecting Climate

- Elevation
- Air get thinner as altitude increases
- Temperature drops 3.5 degrees for every 1000 feet gained in altitude
- High mountains stay covered in snow year around (Even on the equator)

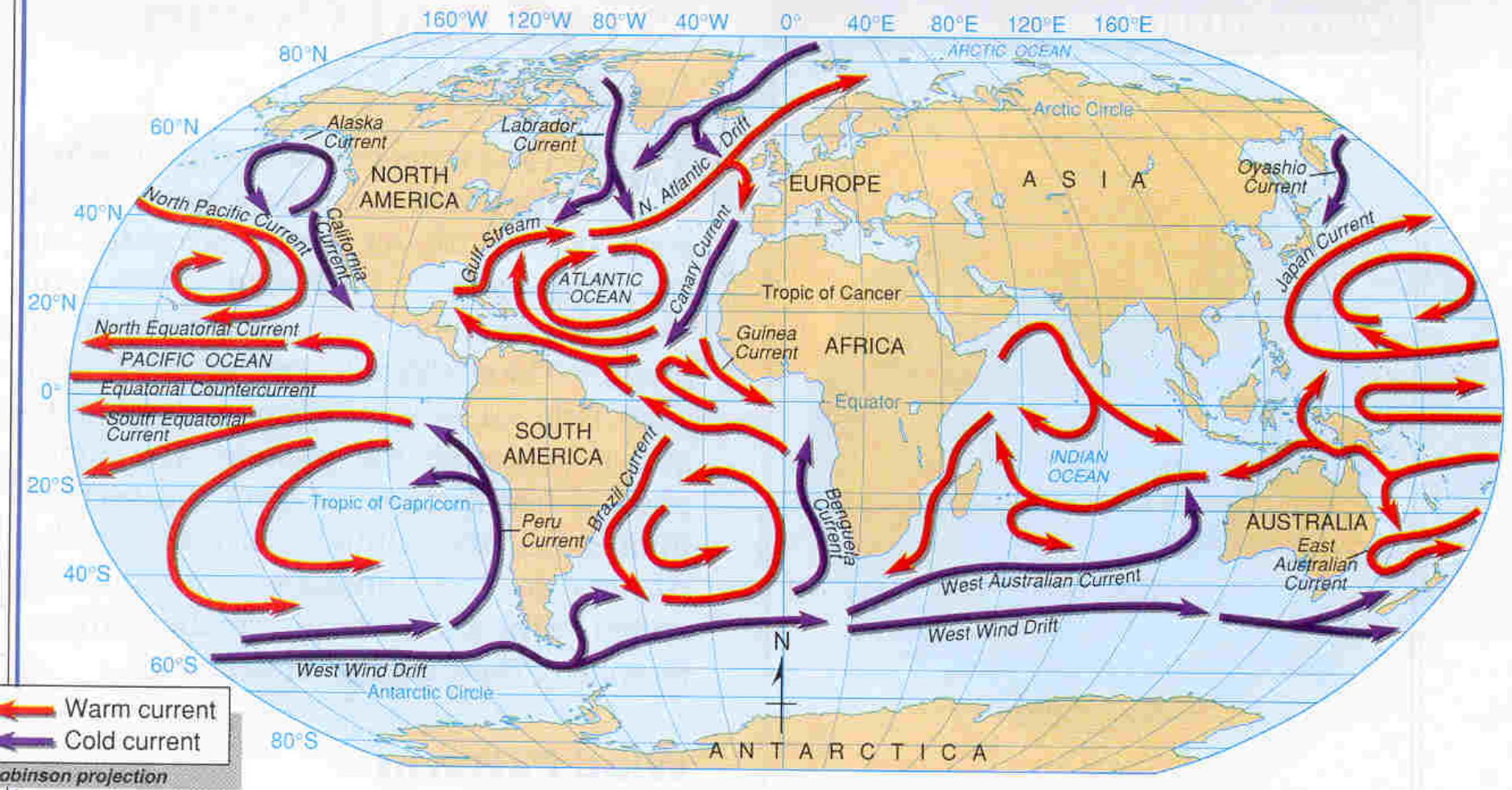
Factors Affecting Climate

- Wind Patterns
- Prevailing winds – Winds that blow in a fairly constant direction
- Trade Winds – Prevailing wind in the low latitudes
 1. They blow toward the equator
- Westerlies – Generally blow in an West to East direction
- Doldrums – Windless area near the Equator

Factors Affecting Climate

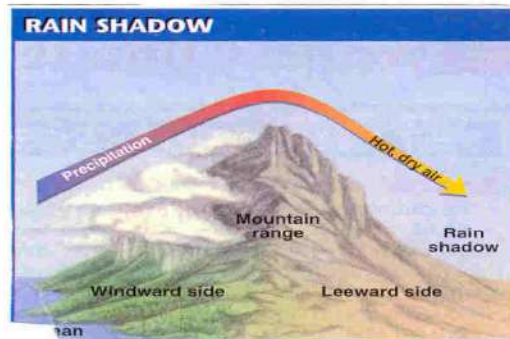
- Ocean Currents – Cold and warm rivers of sea water
- Cold water currents flow south from the poles
- Warm currents flow north from the Equator
- Currents affect the coastal land they pass.

OCEAN CURRENTS AND CONTINENTS



Factors Affecting Climate

- Landforms
- Water – Takes longer to heat and cool than air
 1. Interior land temperatures change more dramatically than coastal temperatures
- Mountain Ranges
 1. Windward side – Side of a mountain facing the wind
 2. Leeward side – Side of a mountain facing away from the rain, doesn't get rain
 3. Called a Rain Shadow



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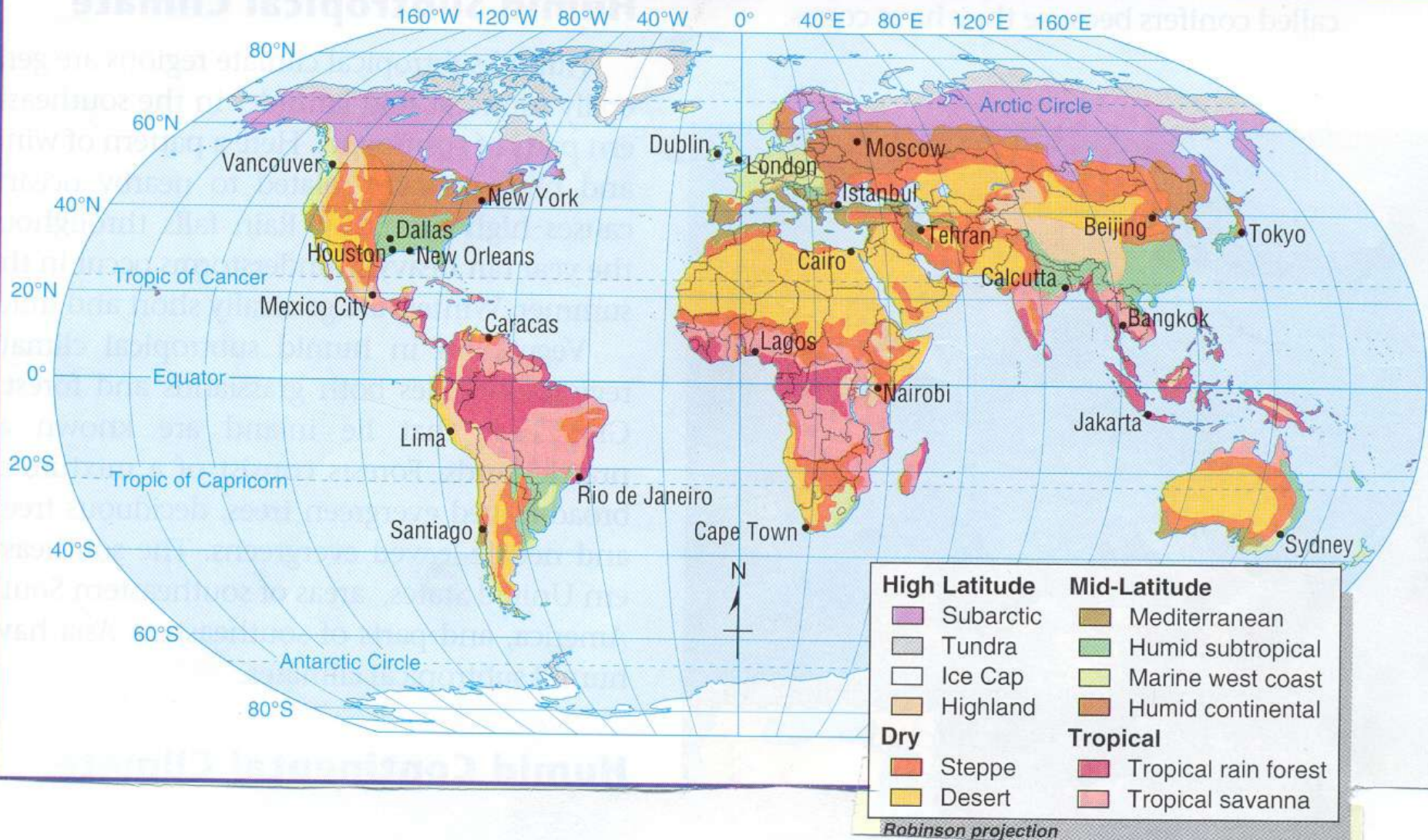
Section 3

World Climate Patterns

Climates

- Tropical Climates – Found in or near low latitudes
- Tropical Rain Forest – Near the equator
 1. Warm humid rains almost daily
 2. Amazon River basin contains the world's largest tropical rainforest
- Tropical Savanna – Located in Africa and South America
- Has a dry season in the winter and a wet season in the summer

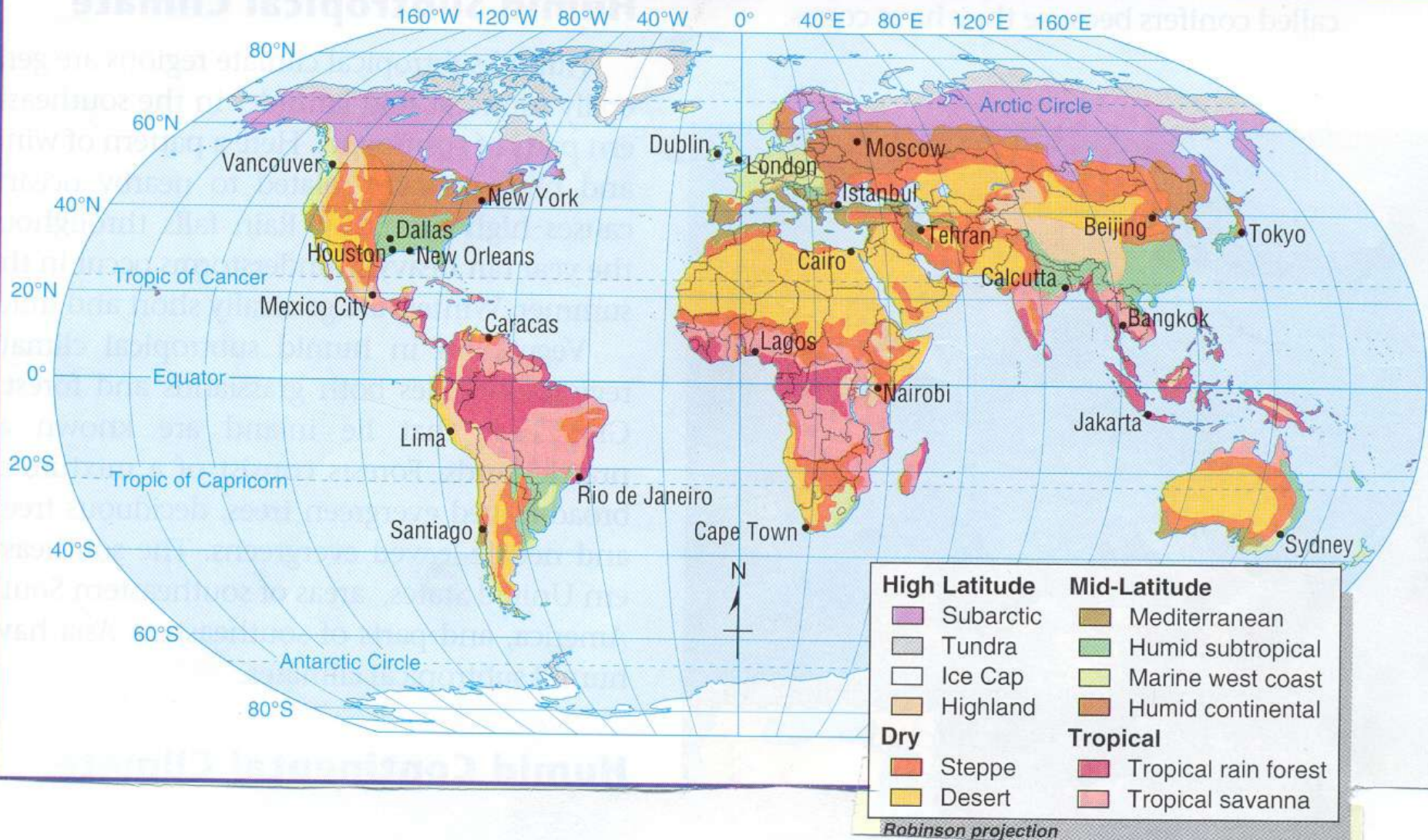
THE WORLD: CLIMATE REGIONS



Climates

- Dry Climates
- Desert Climates – Dry areas with sparse plant life
 - 1. Annual rainfall is less than 10 inches
 - 2. Extremely hot in the day and cold at night
 - 3. Oasis – Area of lush vegetation in the desert (may be supported by under ground springs)
 - 4. Deserts cover about 1/5 or 20% of the earth's land surface
- Steppe Climate – Dry areas bordering deserts
 - 1. Annual rainfall is between 10 and 20 inches
 - 2. Vegetation consist of short grasses, not many trees

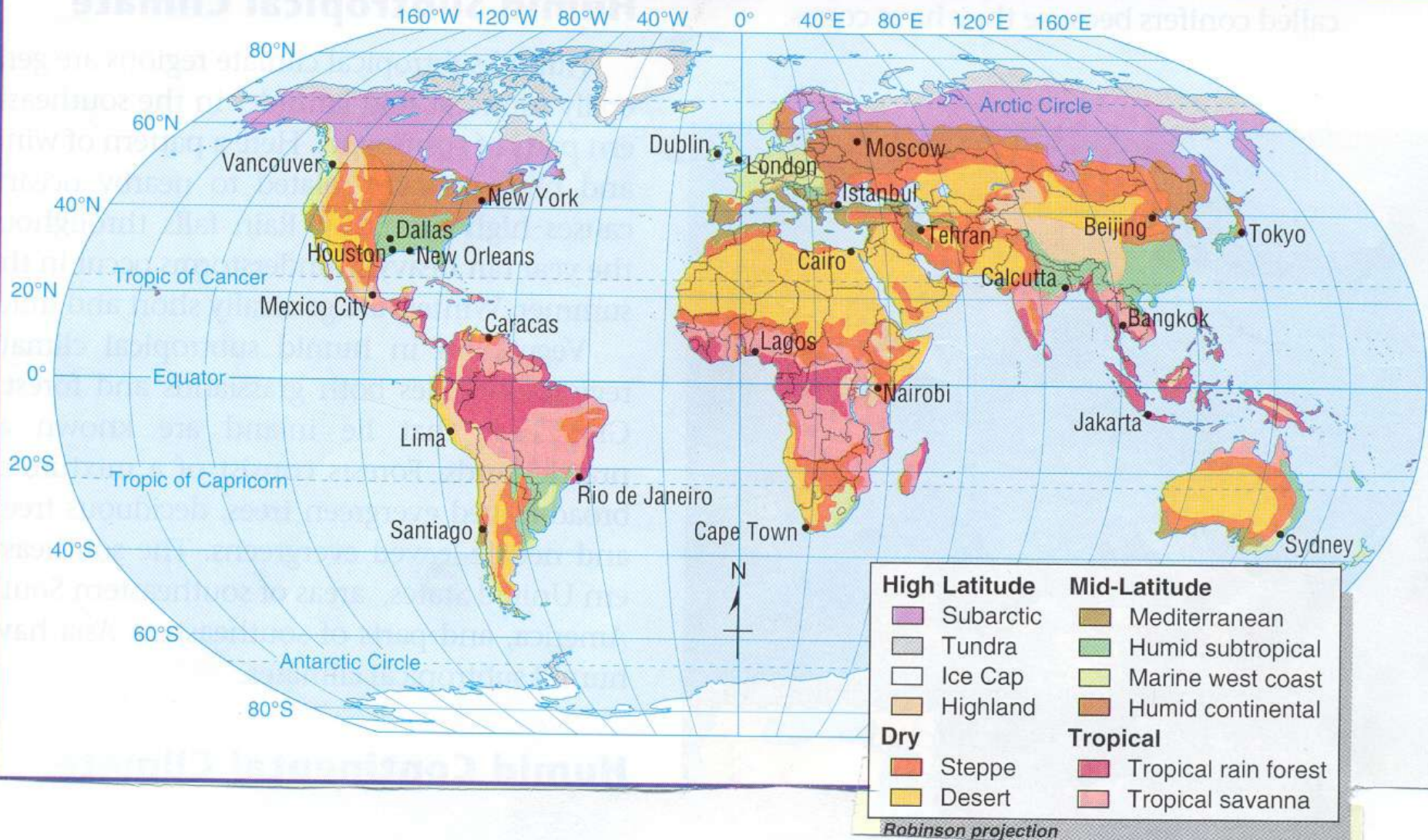
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Climates

- Mid-latitude Climates
- Marine West Coast Climate – Usually found along the western coastlines between 30 and 60 degrees latitude
 1. Ocean currents produce cool summers and mild winters
- Mediterranean Climate – Usually found between 30 and 40 degrees latitude
 1. Mild rainy winters and hot sunny summers
- Humid Subtropical Climate – Usually found in the southeastern part of continents
 1. Rainfall throughout the year, thunderstorms in the summer
- Humid Continental Climate – Influenced more by landmasses
 1. The farther north, the longer and more severe the winter gets
 2. Only found in the northern hemisphere

THE WORLD: CLIMATE REGIONS



Climates

- High Latitude Climates
- Sub Arctic Climates – Located just below the Arctic circle
- Winters are bitterly cold and the summers are cool and short
- Tundra Climates – Located north of the sub arctic regions in the northern hemisphere
- Thin soil above permafrost
- Bitterly cold Winters

THE WORLD: CLIMATE REGIONS

