**Climate and Climate Changes**

**What is Climate?**

* **Climate** is the pattern of weather that occurs in an area over \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Determines the types of plants or animals that can survive, and influences how people live
* Elements that are averaged to determine climate:
	+ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_,
	+ precipitation,
	+ air pressure,
	+ humidity, and
	+ days of sunshine
* Factors that affect climate:
* Latitude- distance north to south of the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	+ **Tropics** (between 23 degrees and 23 degrees south)-sun shines directly overhead, keeping temperatures \_\_\_\_\_\_\_\_\_
	+ **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_zones** (66 degrees north and 66 degrees south to the pole)-sun shines at a low angle, keeping temperatures low
	+ **Temperate zones** (between the tropics and the polar zones)- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ temperatures
* Large bodies of water affect the climate of coastal areas by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ or giving off heat.
* Ocean currents can bring cool or warm temperatures and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to coastal areas.
* Mountains affect their own climate as well as the climates of nearby areas.
	+ At the same latitude, the climate on a mountain is \_\_\_\_\_\_ than the climate at sea level.
	+ Mountains cause air to rise, cool, and condense, creating a \_\_\_\_\_\_\_\_ climate on the windward side of the mountain and a much drier climate on the leeward side.
* Because of their large areas of solar radiation-absorbing pavement, \_\_\_\_\_\_\_ frequently have higher temperatures than surrounding areas.

**Climate Types**

* Koppen’s system of climate \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Examine temperature, precipitation, and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Six types of climate:
	+ tropical,
	+ mild,
	+ dry,
	+ continental,
	+ polar, and
	+ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* **Adaptation –** any structure or behavior that helps an organism \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in its environment
	+ **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** Adaptations are body structures that help organisms survive in colder climates.
		- Example: the \_\_\_\_\_\_\_\_\_\_ of mammals insulates them from cold temperatures.
		- Example: a cactus’s thick, fleshy \_\_\_\_\_\_\_\_\_\_\_\_\_ helps it hold water.
	+ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Adaptions
		- Example:\_\_\_\_\_\_\_\_\_\_\_\_-a period of greatly reduced activity during cold months
		- Example: estivation-state of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, similar to hibernation, that occurs during periods of intense heat

**Climate Changes**

* **Seasons-** short periods of climate change causes by differences in the amount of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_an area receives.
	+ As Earth revolves around the Sun, different areas of Earth are \_\_\_\_\_\_\_\_\_\_\_ toward the sun.
	+ The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ do not experience much seasonal temperature change.
	+ High latitudes near the poles experience \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ seasonal temperature change.
* **El Nino-**an occasional climatic event in which strong Pacific winds \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	+ Effects of El Nino:
		- Ocean temperatures near Peru \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
		- The position and strength of one of the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ may be altered, changing wind and precipitation patterns around the world.
		- Africa and Australia may experience \_\_\_\_\_\_\_\_\_\_\_\_\_\_.
	+ La Nina- The winds blowing across the Pacific are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ than normal.
* At times in the past, Earth’s climate was much warmer or colder than now.
* Causes of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ change can operate over short or very long periods of time.
	+ Solar radiation is blocked by larger numbers of solid and liquid \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ entering the atmosphere.
		- Catastrophic events such as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ collisions can cause climate change.
		- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ can also cause climate change.
	+ Variations in solar radiation, possibly related to the presence of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ can cause climate change.
	+ Earth’s movements in space can change the amount of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ reaching it.
		- Earth’s \_\_\_\_\_\_\_\_\_\_\_\_\_ changes about every 41,000 years.
		- Earth’s \_\_\_\_\_\_\_\_\_\_\_\_\_\_ wobbles in space.
		- The shape of Earth’s \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ changes over a 100,000-year cycle.
	+ The movement of Earth’s \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ affects the transfer of heat on Earth.
* Climate changes today
	+ **Greenhouse effect -** heating that occurs when certain gases like \_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_, and water vapor in Earth’s atmosphere rap heat
	+ **Global warming -** Earth’s average global temperature is rising, possibly due to the increase in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in our atmosphere.
	+ Human activities affect the air in Earth’s atmosphere.
		- Burning \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ increases the amount of carbon dioxide in the atmosphere.
		- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ results in fewer trees absorb carbon dioxide from the atmosphere.
		- Individuals can help reduce the amount of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in the atmosphere.

Typical Pacific Ocean Temperatures/Winds

[ ](https://www.google.com/imgres?imgurl=http://www.datemplate.com/postpic/2009/04/printable-blackline-world-map_583171.png&imgrefurl=http://www.datemplate.com/post_simple-world-map-printable_583166/&h=394&w=600&tbnid=0LMq9SngF3bF0M:&docid=XHGhRd-JXpZ9KM&ei=CTr7VpPBAYfxav-Tp7AK&tbm=isch&client=safari&ved=0ahUKEwjT6bDSrufLAhWHuBoKHf_JCaYQMwglKAkwCQ)

Pacific Ocean Temperature/Winds During El Niño

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