Name:	**Key**

Climate NOTES

OBJECTIVES

Correctly define: abundant, climate, deforestation, depleted, evapotranspiration, greenhouse effect, orographic effect, ozone

CLIMATE:

➢ Give examples of at least five factors that affect climate.
➢ Explain specifically how each factor affects climate.
➢ Identify which wavelength of energy is received from the sun in the greatest intensity.
➢ Explain what gases are responsible for absorbing ultraviolet and infrared energy.
➢ Explain why the ozone layer is important.
➢ Explain the Greenhouse Effect.
➢ Give three examples of Global Climate Change---ice ages, el niño/la niña, and global warming.

Vocabulary

Abundant: _____

_____

Climate: _____

_____

Deforestation: _____

_____

Depleted: _____

_____

Evapotranspiration: _____

_____

Greenhouse Effect: _____

_____
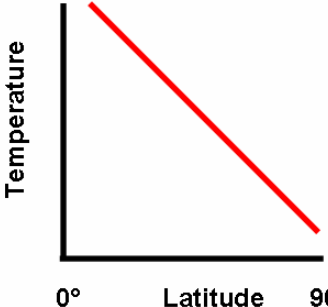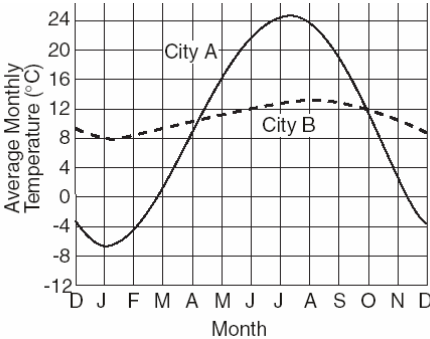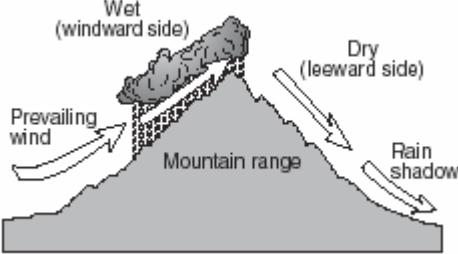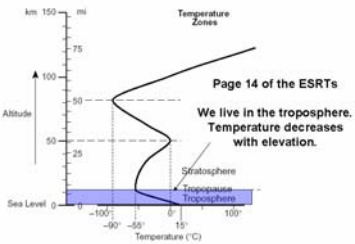
Orographic Effect: _____

_____

Ozone: _____

Key Concepts & Questions

Identify five factors that affect climate and explain how each affects climate.

FACTOR	HOW CLIMATE IS AFFECTED
LATITUDE	As latitude **increases**, the average annual temperature **decreases**.
CLOSENESS TO LARGE BODIES OF WATER	**Cities A & B are located at the same latitude.** Water __**MODERATES**__ the temperature. _cooler_____Summers _warmer____ Winters **City B is closer to a large body of water. Its temperature line is flatter (moderated).**
OROGRAPHIC EFFECT	**Windward:** _COOL, MOIST_____ **Leeward:** _WARM, DRY_____
ELEVATION	**As elevation INCREASES the average annual temperature DECREASES.**
OCEAN CURRENTS	**Warm Currents: warmer climate Cold Currents: cooler climate**

Sun's Energy & Climate

According to the graph below, what wavelength of energy does the Earth receive in the greatest intensity?
VISIBLE LIGHT
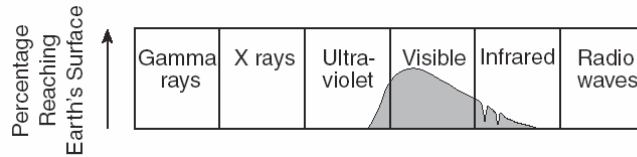
Name the primary gas which absorbs ultraviolet energy (UV) from the sun.   **OZONE**

Name the three primary gases which absorb infrared energy (IR).

CARBON DIOXIDE (CO_2)	**WATER VAPOR (H_2O)**	**METHANE (CH_4)**

Why is the ozone layer important?

it protects us from UV light which can cause cancer and damage crops

Why is it warmer on a cloudy night than on a clear night?

Clouds (H2O vapor) absorb IR energy radiated by the Earth. On a clear night, the IR energy escapes back into space.
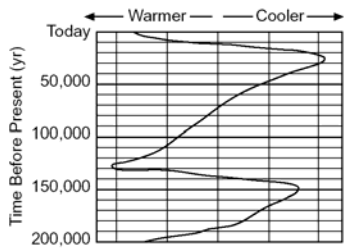
Explain the greenhouse effect. Include a diagram which shows the change in wavelength.

short-wave UV rays from the Sun can pass through the glass, the UV energy gets absorbed and re-radiated as long-wave IR energy which can't pass through the glass
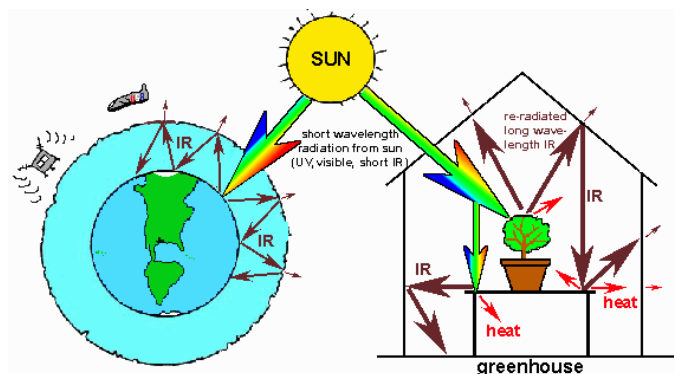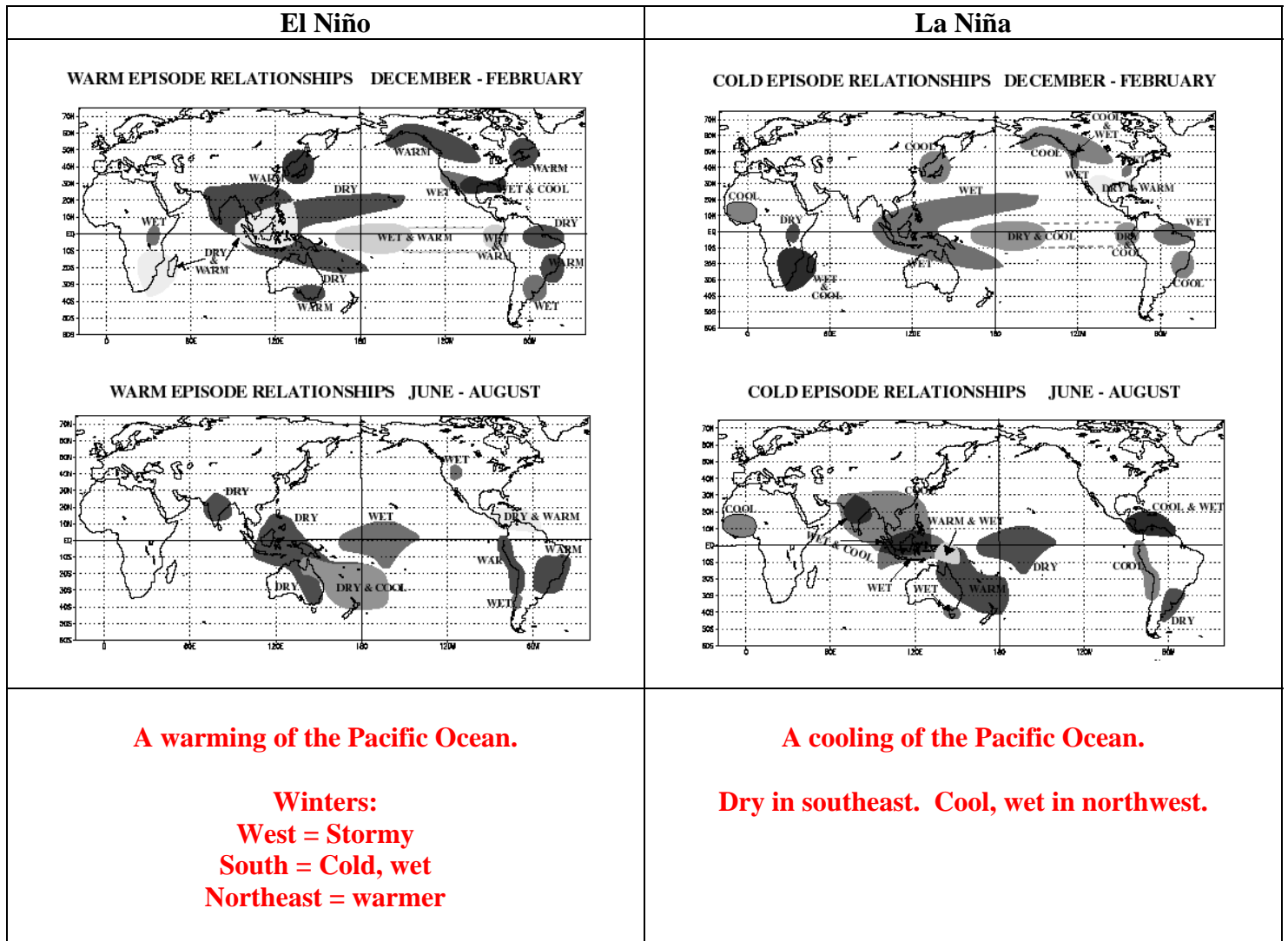
Global Climate Change

1. Ice Ages

Ice Ages are cyclic.

The last one occurred ~12,000 year ago

The exact causes of what triggers an ice age are not known

2. El Niño and La Niña

El Niño	La Niña
WARM EPISODE RELATIONSHIPS DECEMBER - FEBRUARY	COLD EPISODE RELATIONSHIPS DECEMBER - FEBRUARY
WARM EPISODE RELATIONSHIPS JUNE - AUGUST	COLD EPISODE RELATIONSHIPS JUNE - AUGUST
A warming of the Pacific Ocean. Winters: West = Stormy South = Cold, wet Northeast = warmer	A cooling of the Pacific Ocean. Dry in southeast. Cool, wet in northwest.

3. Global Warming

Average global temperatures are increasing.   Glaciers are melting.   Ocean levels are rising.
Warming is natural. Humans are speeding up the process   through increased levels of carbon dioxide (CO_2)