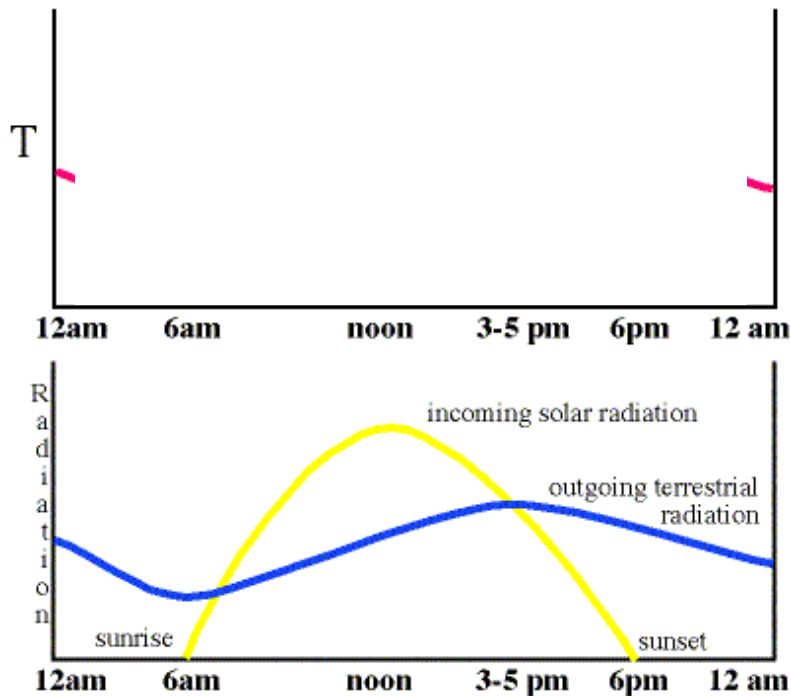




Chapter 3: Air Temperature

1. (a) In what month is the Earth closest to the sun?
 (b) What is the primary factor for the cause of the seasons?
2. Give the two mechanisms that transport surplus heat energy from the equatorial region to the polar regions.
3. The coldest ever temperature recorded was -89°C (-129°F) on which continental land mass? _____
 The warmest ever temperature recorded was 58°C or (136°F) on which continental land mass? _____
4. Sketch a graph of the daily temperature cycle on the axis below. Use the charts to explain why the maximum surface temperature (T_{max}) lags behind the maximum incoming solar radiation by 3-5 hours.



5. Complete the following list of processes affecting daytime heating/cooling near the Earth's surface:

Atmospheric Condition	Earth Surface Condition
_____ speed	land type
_____	vegetation cover
cloudiness	_____ moisture

6. Explain what we mean by a 'temperature inversion' by drawing a sketch graph of a regular temperature profile and an inversion profile. When is a radiation inversion more likely to occur?

7. Besides its: low southern **latitude**, closeness to cold **ocean currents**, and its large **land mass**, which of the 4 controls of temperature is thought to have contributed greatly to the recording of the extremely cold temperature from question 3?

8. Which has a greater range of daily temperatures, desert regions or humid regions? Why?

9. Which city during summer will exhibit the **largest** diurnal temperature variation: San Francisco or Las Vegas? Why?

10. List three different types of temperature measuring devices.

Bonus: Why are summers in the Southern hemisphere, on average, milder than in the northern hemisphere?