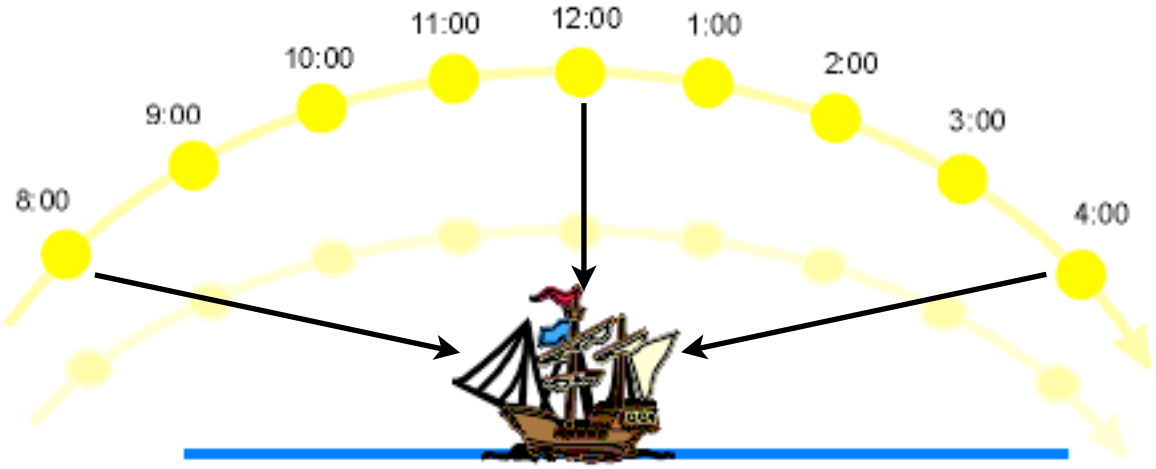
SOLAR NOON

Have you ever noticed that light from the Sun feels more intense when the Sun is high in the sky? The point at which the Sun is highest in the sky (and when shadows are shortest) is called “solar noon.”

When the Sun first becomes visible in the morning, a given point on Earth receives sunshine at an extremely small angle. This means that the relative intensity of the Sun’s radiation is small at this point. The more the light spreads out (or diffuses), the less intense the Sun’s radiation is at a given point. By solar noon, however, when the Sun is highest in the sky, the sunshine is slanted the least, or is closest to being vertical. At the close of the day, the Sun’s rays again strike Earth at a lesser angle.

But sometimes it is hotter at 3:00 P.M. than at solar noon. Why? A given point at the top of Earth’s atmosphere receives more energy from the Sun at solar noon than at 3:00 P.M. or 4:00 P.M. Nonetheless, heat energy from the Sun collects in the atmosphere, on the surface of Earth, and in man-made objects on Earth’s surface from the time the Sun rises until it sets. Earth’s surface sends this heat energy back into the atmosphere. The amount of heat energy sent (radiated) by Earth’s surface determines air temperature. This means that the afternoon—and not solar noon—is often the hottest part of the day.



In this picture, you can see the sunlight hits the ship on an angle at 8:00 AM and 4:00 PM, but is directly overhead at noon.