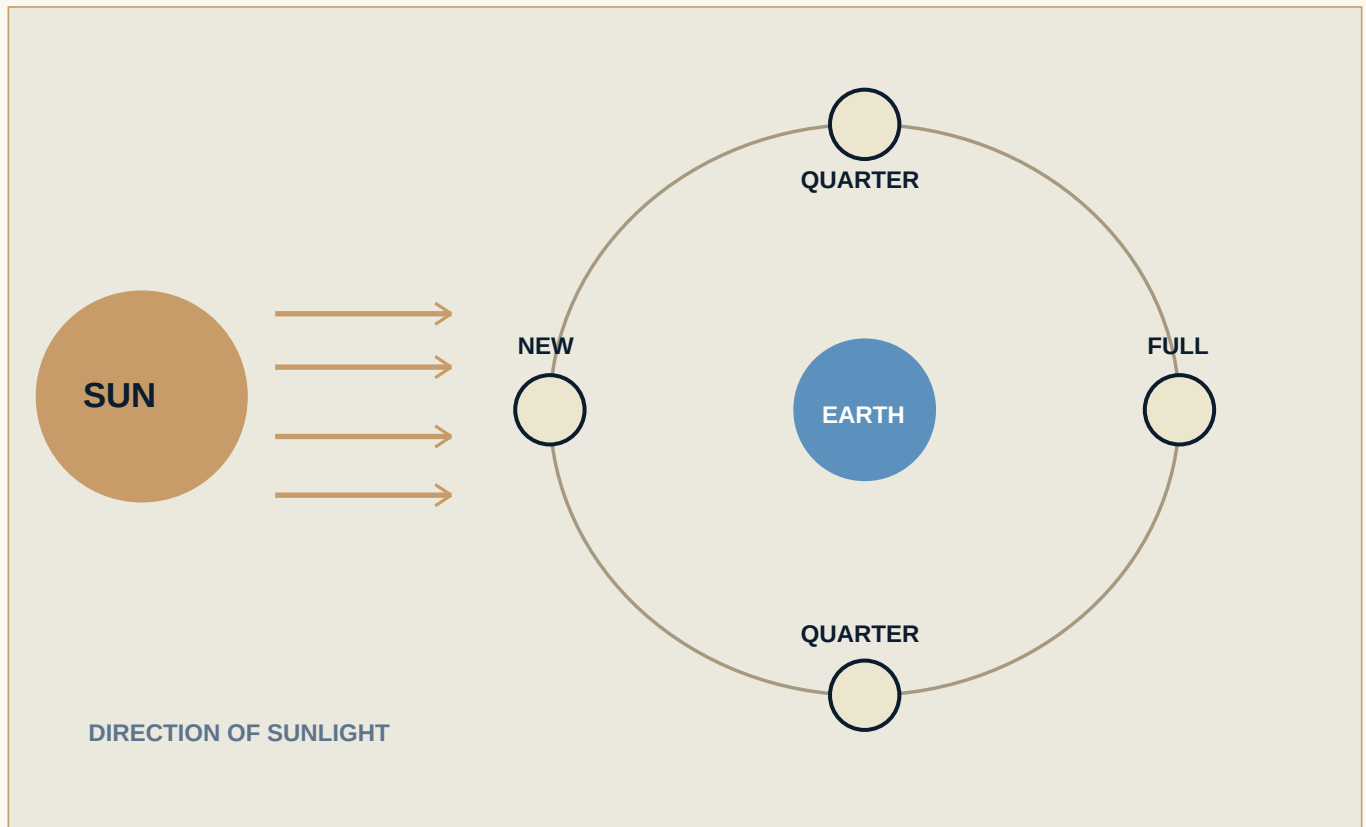


Why the Moon Has Phases

SUNLIGHT / EARTH / MOON GEOMETRY



WHAT THE DIAGRAM EXPLAINS

Lunar phases are explained by how much of the Moon's sunlit half we see from Earth. The diagram shows four relative positions around Earth in a simplified orbital view.

INVESTIGATION QUESTION

Point out when the Moon is roughly between Earth and the Sun and when Earth lies roughly between Moon and Sun. How does the visible fraction change?

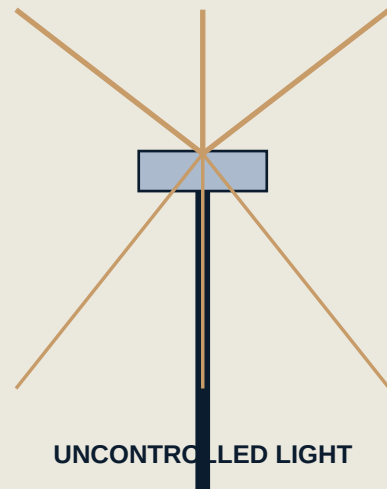
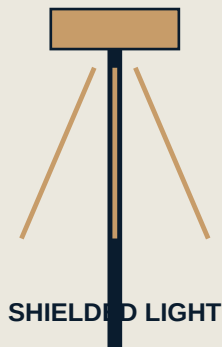
SOURCE

<https://science.nasa.gov/moon/moon-phases/>

NOTE: Not to scale. Moon appearance and illuminated-side orientation vary by observer and geometry; this is not a prediction for a date.

Design Better Outdoor Lighting

USEFUL / TARGETED / LOW LEVEL / CONTROLLED / WARM



ASK: Is light needed, well directed and controlled?

WHAT THE DIAGRAM EXPLAINS

Compare a necessary downward-shielded light with an uncontrolled fixture that wastes light upward and outside its purpose. Real design also considers access, glare, site context and local rules.

INVESTIGATION QUESTION

Name one action for each of DarkSky's Five Principles: useful, targeted, low level, controlled and warm-coloured.

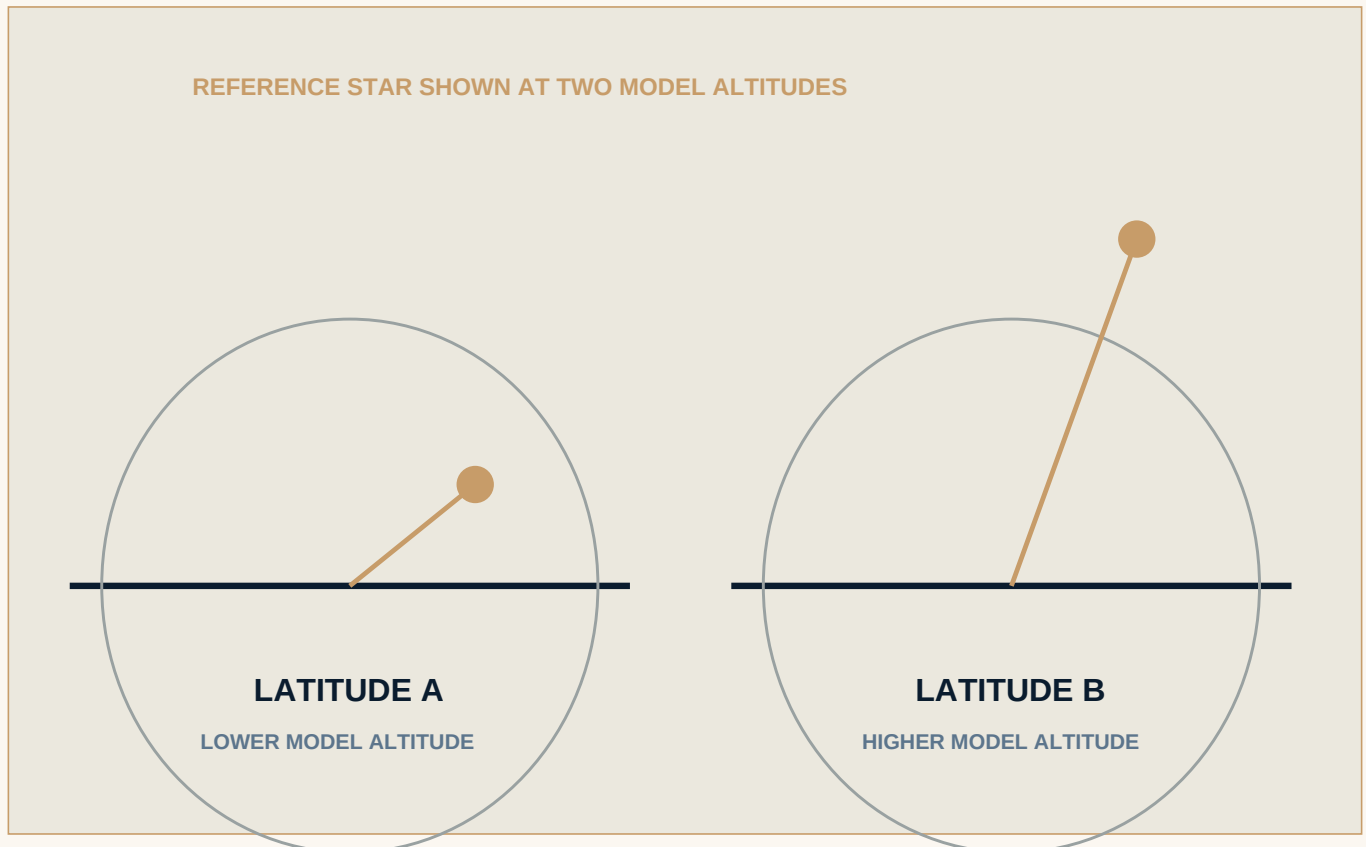
SOURCE

<https://darksky.org/what-we-do/advancing-responsible-outdoor-lighting/>

NOTE: Schematic only. It does not constitute a lighting design, photometric test or DarkSky certification.

Why the Sky Changes with Latitude

HORIZON / REFERENCE STAR / OBSERVATION



WHAT THE DIAGRAM EXPLAINS

Earth's geometry means the altitude and visibility of a reference star can change with an observer's latitude. The drawn star heights are illustrative, not measured real-sky coordinates.

INVESTIGATION QUESTION

Using the ASTRAVYR Southern Sky Explorer, compare one reference star at two preset latitudes. Which parts of your result are modelled rather than directly observed?

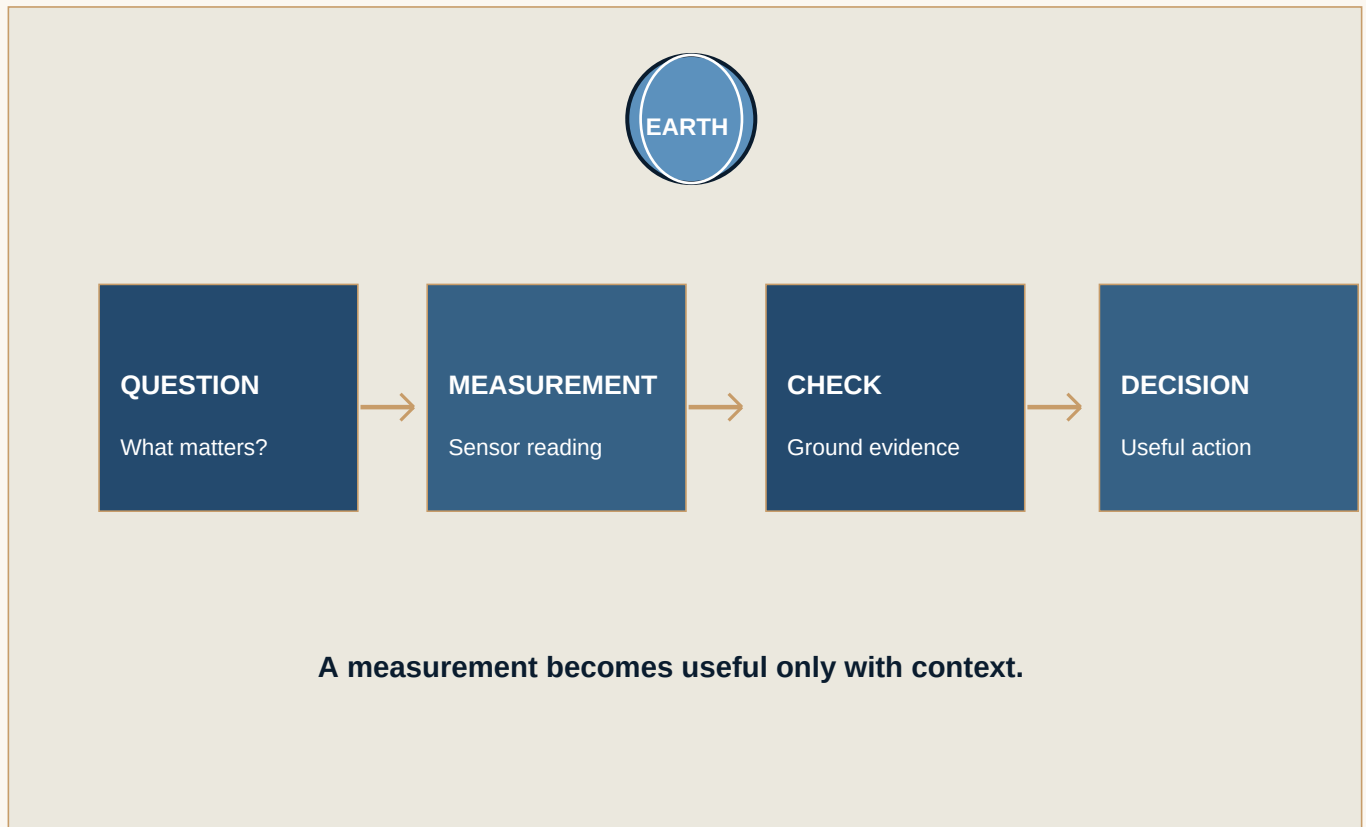
SOURCE

<https://astro4edu.org/resources/>

NOTE: The Academy reference-sky tool is a simplified eight-star model and not a current-night pointing or weather forecast.

How Satellite Observations Help

MEASUREMENT / VALIDATION / DECISION



WHAT THE DIAGRAM EXPLAINS

A satellite sensor observes a physical quantity. Scientists compare it with other information and account for limitations before people use the result for environmental or community decisions.

INVESTIGATION QUESTION

What measurement would be useful for a question about sea temperature, vegetation or smoke? What extra evidence could check the interpretation?

SOURCE

<https://science.nasa.gov/earth/>

NOTE: The diagram is a general information flow, not an actual mission specification or guarantee of an observation.