Teacher Answer Key

Case Study

1. The power outage turned off streetlights and house lights, greatly reducing light pollution and allowing fainter stars and the Pleiades to become visible.

2. By not looking directly at the faint cluster and instead slightly to the side, Maya used averted vision, relying on more light-sensitive cells in the outer retina to detect the Pleiades more clearly.

Multiple Choice

1. D

2. B

3. A

Matching

1-C, 2-D, 3-B, 4-E, 5-A

Fill-in-the-Blank

1) belt, 2) pollution, 3) adaptation

Short Answer (Sample Responses)

Q1: Earth's tilt creates longer winter nights in one hemisphere, giving more time in darkness; Earth's orbit means that at a given time of night in winter, our nighttime side faces toward a different region of space, bringing Orion, Taurus, and other winter constellations into view.

Q2: Holiday lights can create a cheerful atmosphere and help people feel safe and festive, but they also add to light pollution, hiding stars, wasting energy, and disrupting wildlife and human sleep if not well designed.

Q3: Examples include choosing a darker observing site away from bright parking lots, asking for nearby outdoor lights to be turned off temporarily, using only low-intensity red flashlights, shielding any necessary lights so they point down, and scheduling observations for later at night when more lights are off.