Teacher Answer Key

Case Study

1. The dismissal of the mechanism for decades shows that scientific communities often resist evidence that contradicts established assumptions about what past civilizations could achieve. Scholars found it literally incredible that ancient Greeks possessed this level of mechanical sophistication, demonstrating that the limits we place on ancient capabilities reflect our own assumptions rather than necessarily the evidence — a reminder that archaeology continually revises our understanding of the past.

2. A 'technological road not taken' means a line of development that was cut off before it could continue evolving, suggesting the ancient world was on a trajectory toward mechanical engineering that was interrupted rather than simply never begun. The disappearance of whatever tradition produced the mechanism is significant because it means this capability was not simply 'not yet invented' but was invented, developed, and then lost — implying that technological progress can move backward as well as forward.

Multiple Choice

1. D
2. B
3. A

Matching

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

Fill-in-the-Blank

1) Antikythera, 2) Derek de Solla Price, 3) fourteenth

Short Answer (Sample Responses)

Q1: The mechanism challenges our assumptions because it demonstrates that ancient Greek technology achieved mechanical engineering sophistication we did not believe existed until medieval Europe — specifically precision gear systems capable of modeling complex astronomical phenomena. The broader lesson is that absence of evidence is not evidence of absence: ancient civilizations may have possessed capabilities that have simply not survived, and we should hold our assumptions about their limitations more tentatively.

Q2: The combination of Olympic Games tracking with eclipse cycle prediction reveals that in ancient Greek culture, religious festivals, athletic competition, and astronomical science were not separate domains but deeply integrated. The mechanism was a practical tool for organizing both sacred time (festival calendars) and scientific observation (celestial cycles), suggesting that Greek science was not abstract but embedded in religious and civic life.

Q3: 'Technological road not taken' challenges the assumption that history moves in a continuous upward line of progress, showing instead that significant capabilities can be developed, lost, and rediscovered centuries later. This means modern science and technology are not simply the culmination of steady ancient progress but are partly the result of recovering and building on knowledge that was interrupted — a more fragile and contingent picture of human intellectual development.