Teacher Answer Key

Case Study

1. Strontium isotopes in tooth enamel record the geology of the region where a person spent their childhood, because enamel forms early in life and never remodels. The strontium signature in EBR-14's tooth enamel does not match British geology but closely matches North African geology, proving this individual grew up in that region — not in York where they were buried.

2. The discovery supports the reading's point that Roman cities were far more cosmopolitan than traditional history suggested. A person who grew up in North Africa being buried in Roman York — the northernmost major Roman city — demonstrates that the Roman Empire involved genuine long-distance migration, not just military occupation by Italians. It complicates any simple narrative of Roman Britain as a local story.

Multiple Choice

1. A
2. B
3. C

Matching

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

Fill-in-the-Blank

1) Strontium, 2) maize, 3) remodels

Short Answer (Sample Responses)

Q1: Tooth enamel is preferred because it forms during childhood and never remodels afterward, preserving the isotopic signature of that early environment permanently. Bone, by contrast, continuously remodels throughout life, gradually replacing old material with new — meaning bone isotopes reflect the last decade or so of life, not childhood geography.

Q2: Strontium isotope analysis of Roman cemeteries, particularly in York, revealed that individuals buried in the same cemetery had grown up in locations ranging from Scotland to North Africa. This showed that Roman cities were genuinely international communities, with far greater geographic diversity among their populations than written historical sources had indicated.

Q3: Isotope analysis cannot tell researchers a person's name, cultural identity, language, religion, or social status. It also cannot distinguish between voluntary migration and forced movement — a soldier, a slave, and a merchant might all show the same geographic signature. The technique tells us where and what, not who or why.