NO PREP

Mummies

Preserved Bodies and What They Teach Us

Includes: Student reading, case study, differentiated questions, teacher key

Name: Period: Date:

Mummies: Preserved Bodies and What They Teach Us

Natural Mummies: When Nature Does the Preserving

Most ancient human remains survive only as dry bone. Soft tissue — skin, muscle, organs, hair — decomposes rapidly under normal burial conditions. But in certain environments, nature intervenes to preserve bodies in extraordinary ways. Extreme cold, extreme dryness, and extreme acidity can each slow or halt decomposition, leaving behind mummies that retain not just their bones but their flesh, clothing, gut contents, and sometimes even their facial expressions. These naturally preserved individuals give archaeologists a direct window into the past that skeletal remains alone cannot provide. Cold is perhaps the most reliable natural preservative. Frozen mummies from the Andes, the Alps, and the Arctic have yielded remarkable scientific data. Desiccation — drying out — works equally well in hot, arid environments. The

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The Egyptian Way: Intentional Mummification

When most people think of mummies, they think of Egypt, and for good reason. The ancient Egyptians developed intentional mummification into a sophisticated, ritually elaborate process that they practiced for over 3,000 years. The goal was to preserve the body for the afterlife: Egyptian religious belief held that the soul needed a recognizable physical form to return to after death. Without a preserved body, the soul could not achieve eternal life. Mummification was therefore not just a preservation technique but a religious necessity, at least for those who could afford

it. The full mummification process took approximately 70 days. After death, the body was taken to an embalming workshop. The brain was typically removed through the nose using a metal hook and discarded. The ancient Egyptians considered the heart, not the brain, to be the seat of thought and emotion. Internal organs were removed from the abdomen, dried with natron (a naturally occurring salt), and placed in canopic jars with lids shaped like the heads of protective deities. The body cavity was packed with natron-soaked linen and left to dry for 40 days. After drying, the body was washed, anointed with oils and resins, wrapped in hundreds of meters of linen bandages with protective amulets placed between the layers, and placed in a series of nested coffins.

Bog Bodies: Europe's Eerie Preserved Dead

In the peat bogs of northern Europe, particularly in Denmark, the Netherlands, Germany, Ireland, and the United Kingdom, hundreds of well-preserved human bodies have been discovered over the past several centuries. Peat bogs preserve flesh through a combination of cold temperatures, acidic water (from decomposing sphagnum moss), and oxygen-poor conditions. The acid tans the skin like leather and often dissolves the bones while leaving the soft tissue remarkably intact, a reversal of normal burial conditions. Many bog bodies still have their hair, skin, fingernails, and stomach contents. Most bog bodies date to the Iron Age, between roughly 500 BCE and 100 CE, and many show evidence of violent death: strangulation, throat-cutting, blunt force trauma, or multiple simultaneous injuries. Tollund Man, found in Denmark in 1950, had a braided leather noose still around his neck when he was discovered; his face is so well-preserved that he looks as though he might have died recently. Lindow Man, found in a Cheshire peat bog in 1984, had been struck on the head, garroted, and had his throat cut before being placed in the bog, a pattern of overkill that many archaeologists interpret as ritualized killing, possibly a sacrificial offering to Iron Age gods.

Otzi the Iceman: The World's Most Studied Mummy

In September 1991, two hikers in the Alps on the Austrian-Italian border stumbled across a body emerging from a melting glacier. They assumed it was a recent accident victim. It was not. Otzi the Iceman, as he came to be known, had been frozen in the glacier for approximately 5,300 years — making him the oldest naturally preserved human ever found in Europe. Remarkably, he was found with his

equipment: a copper axe, a bow and arrows, a knife, clothing made from multiple animal hides, and grass-stuffed shoes. Otzi has been subjected to more scientific analysis than almost any other individual in history. Researchers have determined his age (approximately 45), his blood type (O), his eye color (brown), his diet in his final days (red deer, ibex, einkorn wheat, and various plants), and his health conditions (Lyme disease, hardened arteries, worn joints, and intestinal parasites). Most dramatically, a high-resolution CT scan in 2001 revealed an arrowhead lodged in his left shoulder — Otzi was murdered, shot from behind. His hand also showed a deep cut between the thumb and forefinger consistent with defensive wounds, suggesting he fought before he died.

Key Information: Types of Mummies and Key Examples

Mummy Type / Example	Preservation Method	Key Scientific Findings
Egyptian mummies	Intentional: natron drying, organ removal, linen wrapping	Religious practice, diet, disease, cause of death from CT scans
Tollund Man (Denmark, 1950)	Bog: cold, acidic peat, low oxygen	Iron Age diet (last meal: gruel), executed by hanging, ritualistic context
Lindow Man (UK, 1984)	Bog: cold, acidic peat, low oxygen	Triple death (blow, garroting, throat cut) suggesting ritual sacrifice
Otzi the Iceman (Alps, 1991)	Frozen glacier (natural cold desiccation)	5,300 years old; murdered by arrow; carried copper axe; multiple health conditions
Chinchorro mummies (Chile)	Intentional desiccation in Atacama Desert	Oldest deliberate mummies in the world (7,000+ years old)

Mummy Type / Example	Preservation Method	Key Scientific Findings
Inca capacocha children (Andes)	Cold and altitude desiccation	Preserved soft tissue, last meals, blood type; shed light on sacrifice rituals
CT scanning value	Non-invasive modern imaging	Reveals internal structures, implanted objects, cause of death without unwrapping

Case Study: Something That Should Not Be There

Dr. Sarah Okonkwo has CT-scanned dozens of Egyptian mummies in her career as a radiologist, but she has never seen anything quite like what the screen is showing her now. The mummy is from the Cairo Museum's collection — an adult male, estimated to be from the New Kingdom period, roughly 1300 BCE. The wrappings are intact, the canopic jar traces are visible, the nested wooden coffin fragments are exactly what you would expect from an upper-class burial. Sarah is scanning it as part of a joint research project between the museum and her hospital. And then, in the chest cavity — between the third and fourth ribs, slightly left of center — there is something metallic. Small. Dense. Circular in cross-section. She calls in her colleague, Dr. Ahmed Farouk, from the museum team. He leans over her shoulder and studies the image for a long moment. 'That is not a ritual object,' he says. 'That shape. That position.' 'I know,' Sarah says. The object is approximately 8 millimeters in diameter. It is positioned in a location consistent with a penetrating wound to the heart. If Sarah is reading the scan correctly, this man did not die of illness or old age. She pulls up her note-taking software. Three thousand three hundred years. Whoever did this thought it was finished. She begins to type.

1. Using the reading passage, explain what CT scanning offers to researchers studying mummies — and why Sarah's discovery would have been impossible without this technology.

2. What does this case study suggest about the limits of traditional historical records for understanding how ancient people actually died? Use both the case study and the reading to support your answer.

Multiple Choice

1. What substance did ancient Egyptians use to dry out bodies during the mummification process?

a) Limestone powder mixed with olive oil

b) Nile mud mixed with animal fat

c) Natron, a naturally occurring salt

d) Cedar resin imported from Lebanon

2. How do bog bodies differ from Egyptian mummies in terms of what is preserved?

a) Bog bodies often retain soft tissue but lose their bones, while Egyptian mummies preserve both

b) Egyptian mummies are preserved by acid and wrapping, while bog bodies are dried by desert heat

c) Both types are preserved identically, with no meaningful scientific difference

d) Bog bodies retain their bones but not their soft tissue

3. What did a CT scan of Otzi the Iceman reveal that changed understanding of his death?

a) He had died of a heart attack caused by his hardened arteries

b) An arrowhead was lodged in his shoulder, indicating he was murdered

c) He had undergone Egyptian-style embalming before being placed in the glacier

d) His lungs showed evidence of drowning in a glacial meltwater pool

Matching

Write the letter of the correct definition on the line next to each term.

Term	Definition
1. ___ Mummification	A) A naturally occurring salt used by ancient Egyptians to dry out bodies during mummification
2. ___ Bog body	B) A 5,300-year-old frozen mummy found in the Alps in 1991, the oldest naturally preserved European
3. ___ Otzi	C) The process of preserving organic material by removing all moisture through drying
4. ___ Natron	D) A preserved human body found in the acidic, cold, oxygen-poor conditions of a peat bog
5. ___ Desiccation	E) Process of preserving a body, either naturally or deliberately, to prevent decomposition

Fill-in-the-Blank

1. The salt used to dry out bodies during Egyptian mummification is called _____.

2. Otzi the Iceman was found preserved in a melting _____ in the Alps, where he had been frozen for over 5,000 years.

3. Bog bodies are preserved by the cold, oxygen-poor, and acidic conditions created by decomposing _____ moss.

Short Answer

Answer each question in 2-4 complete sentences.

1. What advantages does CT scanning offer over physical dissection when studying mummies, and why is this especially important for rare or historically significant specimens?

2. How do bog bodies differ from Egyptian mummies in terms of preservation method and what they reveal to researchers?

3. What does Otzi the Iceman's body tell us about life — and violence — in Copper Age Europe?