

Name:

Date:

H.W.#:

Assignment: Reading Informational Text – Otzi the Iceman

Directions: The following lesson is adapted from Discovery Education:

<http://www.discoveryeducation.com/teachers/free-lesson-plans/forensics-who-killed-the-iceman.cfm>

Students will...

- review information about mummies
- research a well-known ice mummy, Otzi the Iceman
- work in small groups to read and report on informational text
- participate in an interactive lesson using the Otzi app

Procedures:

1. Ask students the following questions about mummies (answers in italics).
 - What is a mummy? (*a preserved body*)
 - How are mummies different from skeletons? (*They have some organs, muscles, or other soft tissue.*) Explain why some bodies become a skeleton, while others become mummies. (*Usually, bacteria or fungi break down soft tissue, leaving a skeleton. When bacteria or fungi cannot grow, the body is preserved and may become mummified.*)
 - How are ice mummies different from Egyptian mummies? (*Ice mummies were preserved accidentally, frozen by their natural environment. Egyptian mummies were preserved on purpose, through a method called embalming.*)
2. Next, ask students to identify what archeologists can learn about a mummy. (*A person's gender, age, diet, cause of death, culture, religion, social standing*)
 - What clues do archeologists look for in a mummy? (*Cultural artifacts, details about bones and wounds, stomach contents, where the mummy was found*)
3. Divide the class into three groups and explain that each group will read an article about a well-known ice mummy: Otzi the Iceman (*discovered in the Alps, believed to have died about 5,300 years ago*).

Students will...

- Discuss the assigned questions first
 - Read the article silently, highlight, and take appropriate notes when needed
 - Discuss their agreed upon answers to the assigned questions
 - Report out their findings to the larger group
4. The following are questions that can relate to most of the assigned readings. Teacher will divide up the questions, so that each group is only responsible for answering a few specific questions. Many of the answers can be found directly in the text. Some answers must be inferred.

1. Where and when was this mummy found? How old is it? Where can the mummy be found today?
2. What do we know about this mummy's age, gender, religion, cause of death? Explain how scientists know this information.
3. Describe the artifacts found with the mummy. What did they reveal?
4. Describe physical characteristics or marks on the mummy. What do they reveal?
5. What other facts have archeologists concluded about this person's life or death?
6. What has the mummy revealed about its society?
7. What technology was used to study this mummy?
8. Describe the roles of the experts who study this mummy. (archaeologists, radiologists, pathologists, botanists, anthropologists)
9. What questions remain unanswered?

The related articles follow below.

Article #1: The Iceman

From The American University

I. Identification

1. The Issue

The focus of research in this case study deals with a very ancient subject: a dispute between Austria and Italy over rights to the body of a Neolithic trader found on their border. The discovery of the ancient body also gave us great insight to our past. My key areas of research will concentrate mainly on the aspects that prove this iceman to be a trader: What makes us believe he was a trader? What are the other theories that try to describe who this man was? And if he truly was an ancient trader, what insights can he reveal on ancient trading customs? I will also focus on the actual dispute between Italy and Austria on the significance of ownership of the iceman.

2. Description



In September of 1991 two Austrian hikers in the Tyrolean Alps stumbled across an ancient secret frozen in time. They discovered the well-preserved body of an ancient man locked in ice for centuries. After careful investigation it was believed that this iceman, nicknamed Otzi for the area in which he was discovered, was actually

following an ancient trade route when he died. Many clues pointed to the fact that Otzi was not from the area and must have traveled by foot to look for goods to possibly trade.

While archeologists and historians were excited with the find of the iceman, Italians and Austrians both laid claim to Otzi's ancient remains that resulted in a six-year dispute. The discovery of the iceman has shed light on ancient trade and customs, the trade routes within the area between Austria and Italy and

what goods traders came for. If the iceman came for trade, what could he have been looking for? And also, where could he have come from? What types of trade were significant in his time?

There have been many theories attempting to explain who the Iceman really was. Of the more convincing theories is that of being a trader or merchant. The Alps were a busy barter area during prehistoric times. The Romans built roads in the area of the Alps and it was said that the Romans usually built roads along ancient prehistoric trails. There have been a number of archeological findings along the Alps all due to the high traffic of the area during this time. The four major reasons for transit were: hunting, mining, high-altitude grazing and trade. Today the trails are still used by sheep herders.

If the Iceman really was in the area for trading goods, what kind of goods could he have been looking for? In what we know as the Italian Alps today goods such as hides, furs, honey and amber were found. In the section of what we know as the Austrian



Alps raw materials such as salt, gold, and iron were found. If the Iceman was just in transit in the Alps on his way south he may have been looking for flint, jade, shells or copper. Materials of which some tools he was carrying were made of.



Due to the intense cold all the objects the iceman had on him were also well preserved. He had numerous interesting objects including an ax, blade, flint knife, marble bead and a small leather pouch with herbs.

Clothing of the Iceman:

The clothing that was found on the Iceman is the first time Neolithic clothing has been found so well preserved. A description of his clothing

can give us an idea of how people dressed and the methods and textiles they used to create such clothing.

The clothing of the Iceman consisted of a cap, his upper garment, a pair of leggings, a loincloth, a pair of shoes and a cloak. The cap was made from individually cut pieces of fur sewn together. Attached to the cap were two leather straps probably used as a chin strap.

The upper garment looks like a cloak or cape. The material is the hide of a deer that probably had fur on one side. It is also sewn together by various pieces and was worn with the fur on the inside. It probably came down to his knees and had no sleeves. It is suggested that he wore the hide side in warmer weather as the Eskimos do to this day, thus a prehistoric reversible coat!

The leggings found on the iceman were made of the same material of both the cap and cloak, fur and hide. It was also made of several separate pieces of fur sewn together. It was like a long stocking without the foot section. In fact it covered the thigh as well as the calf and was worn loose to allow for movement. He was not wearing pants, instead he had two separate leggings.

Since he wore no pants, he had a loincloth to protect his genital area. The loincloth is not made of fur as the other garments yet made solely of leather. It consisted of a front flap that went down to his knees. Its shape looked like a scarf tied to his waist.

The shoes were also made of leather strapped together with leather straps. The leather was made of cowhide. For warmth the shoes had no fur, instead they were stuffed with grass inside.

Over his fur garments the Iceman was found wearing a coat made of grass. The coat went down to his knees and was tied around his neck.

Equipment:

Of the largest items found on the Iceman was the bow-stave. The bow-stave was not yet completed thus he was probably working on it while traveling. The wood was made of yew (all prehistoric bows were made of this wood). It would have made a great weapon.

He was also found with an ax as shown in the image to the right. The handle was made of yew while the blade was made of secondary copper.

The Iceman also had a prehistoric backpack used to carry loads. It was made of two short boards of larch and a hazel rod. It was shaped like a U. It was tied in the back with string probably made of grass.



Of the more interesting finds was his belt pouch. The actual belt pouch is made of leather and inside were five objects: three flint implements, a bone awl and a piece of tinder. The flint was probably used to cut grass, as a tool to drill holes and carving. The bone awl was probably used to punch holes in leather or fur and perhaps even as a tattooing needle. The iceman was found with many tattoos on his body. The birch was probably used for its tar, which was used as an adhesive.

The final objects found on the Iceman were two birch fungi. It is well known that birch fungus contains antibiotic substances, yet it can also produce hallucinations. Thus, he probably used it as a sort of medicine on his journey.

The final death of the Iceman was at first puzzling. Many believed he froze to death while trying to journey his way through the icy mountains or perhaps by a fall. Yet after careful investigation a team of scientists has determined that Otzi actually died from a wound from an arrow that ripped through his back. The mystery was solved July 2001 almost 10 years after his discovery.

(end of article)

Article #2

News in Science - Ice Man archaeology reveals skilled hunter - 13/05/2003

[This is the print version of story <http://www.abc.net.au/science/news/stories/s853689.htm>]

Ice Man archaeology reveals skilled hunter

Tuesday, 13 May 2003

An Australian archaeologist has used forensic techniques to unravel the secrets of the oldest known human mummy.

Molecular archaeologist Dr Tom Loy from the [University of Queensland](#) presents his analytical work on the tools of the 'Ice Man' at a Brisbane seminar tonight, one of the events marking [National Archaeology Week](#) in Australia.



Ötzi the Copper Age hunter died 5,300 years ago, his remains preserved in ice (Pic:[South Tyrol Museum of Archaeology](#))

The mummified body of the 'Ice Man' from Austria's Tyrolean Alps – nicknamed Ötzi – was revealed by thawing ice in 1992 complete with clothing, personal effects, and tattoos, dating back approximately 5,300 years to the Copper Age.

"I was asked to look at the tools in the Ice Man mummy's toolkit, and went to Germany in 1993," Loy told ABC Science Online. "I spent ten days looking at everything I could find, making connections between the use of one tool to modify another."

Ötzi was a highly competent hunter, who died carrying a bow, a quiver of stitched leather, a Skinner made of deer antler, a coiled bowstring, two finished arrows, a stone flake knife attached to a handle, a small triangular blade, a small unshaped flake like a utility knife, and a tapered drill and gouge made from flint.

"One of his tools was a pressure flaker – the oldest in the world that I'm aware of – a small chip of reindeer antler soaked in a thick pitch to stop it from drying out and becoming brittle, and that was shoved into a small piece of wood, and he used that to finely retouch and sharpen edges."

The two arrows had an unusual fletching, where the feather was trimmed to only about 5 mm and glued in a spiral pattern around the arrow shaft, to make it twist as it flew through the air. The arrows were one metre long and very light, ideally suited for shooting above the treeline.

Using an incident light microscope and some chemical screening techniques, Loy analysed the residues on the tools. In particular, the knife of triangular cross-section was the "original Swiss army knife", he says.

"The residues showed one blade had been used for scraping skins, one for cutting grass, and another side for preparing bone for manufacture. Its top ridge can be used like a wood-plane on wood, bone or antler. I identified organic residues of blood, starch, cellulose, fat, and feathers, consistent with the kinds of residues you'd expect to find on a hunter."

Loy's areas of research include the study of human artefacts found in direct association with megafauna remains at Cuddie Springs in south-eastern Australia, using skills developed through his Ice Man study to examine the coexistence between humans and megafauna in Australia.

Ten years after his first meeting, Loy is planning to return to the museum housing Ötzi for a second look and undertake DNA studies to see what kinds of animal blood is on his arrows. "I have an emotional bond," he told ABC Science Online.

"I had this eerie sort of sensation that all the Inuit and Eskimo elders that I knew, teaching young people about how to do things, it was like they were looking down the microscope with me saying 'this guy was good, he knew how to make tools and treat them right – he was a good hunter.'"

Mark Horstman – ABC Science Online

(end of article)

Article #3: Ancient Worlds News - Prehistoric ice-man fought to his death - 14/08/2003

[This is the print version of the

story http://www.abc.net.au/science/news/ancient/AncientRepublsh_924421.htm]

Prehistoric ice-man fought to his death

Shasta Darlington *in Rome*

Reuters

Thursday, 14 August 2003

The 5,000-year-old corpse nicknamed 'Otzi' may have been shot in the back with an arrow, but he only died after prolonged combat with his foes, an Australian molecular archaeologist has found.



Ötzi's died fighting; his remains were preserved in ice(*South Tyrol Museum of Archaeology*)

Dug out of a glacier in northern Italy more than a decade ago, Otzi had traces of blood from four different people on his clothes and weapons, according to new genetic evidence uncovered by Dr Tom Loy of the [University of Queensland](#) in Brisbane, Australia.

He also had defensive cut wounds on his hands, wrists and rib cage, Loy said, pieced together by an analysis of blood and DNA tests. Loy travelled to the northern Italian town of Bolzano to conduct the research.

"Presumably he was in a combat situation for between 24 to 48 hours before he died," Loy said. "I think one of the things we could advance is that he shot at least two different people and retrieved his arrow, but then he shot at something else and missed, shattering his arrow."

Loy took initial blood samples from Otzi's arrows, knife and coat in July. Amplifying and sequencing the samples, he concluded they belonged to four different people - not including Otzi himself. "The plot thickens a bit now," he added. "Rather than a simple murder ... it looks like he may have put himself in a boundary situation where bloody battles often occur."

Otzi, the oldest mummy ever unearthed, was found in the Italian Alps in 1991.

Scientists were thrilled to find he had remained frozen, and almost perfectly preserved, for thousands of years.

He wore clothing made from leather and grasses and carried a copper axe, a bow and arrows. Speculation immediately began about who he was and why he died where he did, but it was hard to do too much checking without damaging his body.

Later, an arrowhead was found in his left shoulder, suggesting Otzi did not simply freeze to death while climbing the high mountains, but was shot by a fellow hunter.

After studying the corpse's intestines, Italian researcher Professor Franco Rollo, an archaeologist at the [Universita di Camerino](#) in Italy concluded last year that the iceman's final meals consisted of venison and ibex meat.

The latest research gives scientists a glimpse of what the stone age hunter's last, bloody hours must have been like. Loy said the tools that Otzi was carrying suggest he was a specialist hunter who often worked above the tree line in high passes that were often boundary areas between different, hostile language groups.

He said the blood found on the back of Otzi's coat could have come from a wounded companion that he was carrying, but that the arrows and knife blade suggest that he was also fighting off at least two foes.

(end of article)

