



*From mummies to mitochondria, skeletons to sequencing,  
Denisovans to DNA, molecules to murder....*

# OUR HUMAN INHERITANCE

*Understanding our genetic ancestry  
& what makes us human*

*featuring* ≡ ÖTZI ≡  
THE ICEMAN

# ÖTZI THE ICEMAN

**Look at the mummy!**

## The Making of Ötzi's Replica

What type of images were used to make the 3D print of Ötzi?

.....

Where in Italy is the real mummy stored?

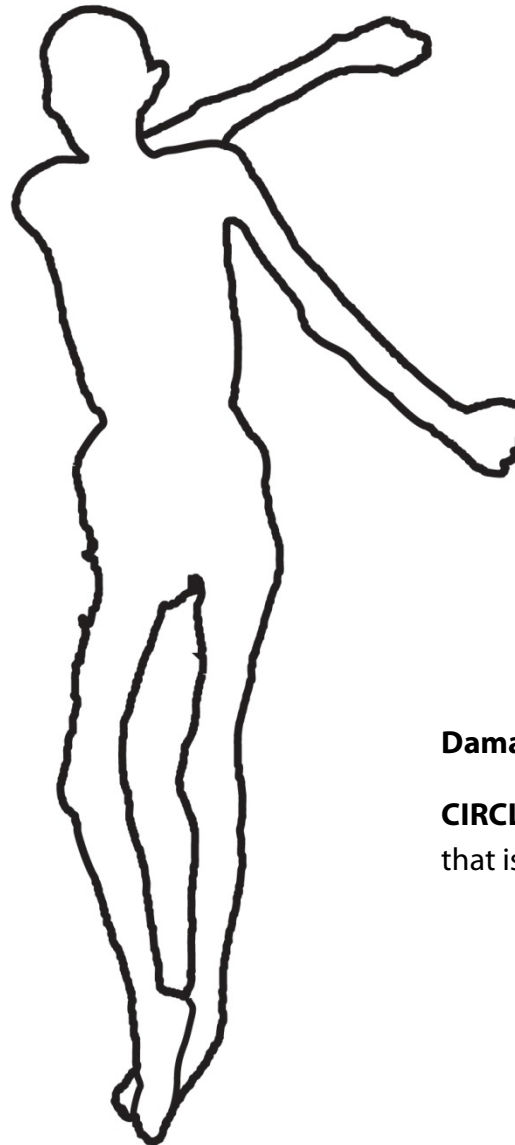
.....

## Fatal Wound

Evidence suggests that Ötzi was shot by an arrow, and this caused his death.

**MARK the location of the arrow wound** with an "X" on the Ötzi to the right.

**Did you know?** *The arrowhead that caused Ötzi to bleed to death wasn't discovered until 10 years after the mummy was found.*



## Did you know:

*Ötzi's ancient tattoos were made by making fine cuts in his skin and then rubbing charcoal in the cuts.*

## Ancient Ink

Ötzi has 57 visible **tattoos** in the form of small lines and crosses. (4 cannot be seen.)

**FIND and DRAW** as many tattoos as you can on the illustration of the iceman's mummy (each line counts as a single tattoo; a cross would count as two).

## Damage

**CIRCLE the area** of the mummy that is damaged.

## Did you know:

*This damage was caused accidentally by a power tool during the recovery of the mummy in 1991.*

# ÖTZI THE ICEMAN

Read the panels!

**Did you know?**  
All except one of Ötzi's fingernails were missing; a single detached nail was found by his body!

## Analysis

One of Ötzi's **fingernails** had horizontal ridges that indicated:

.....  
.....

Ötzi's **teeth** were well preserved. What information did analysis of his teeth reveal?

.....  
.....

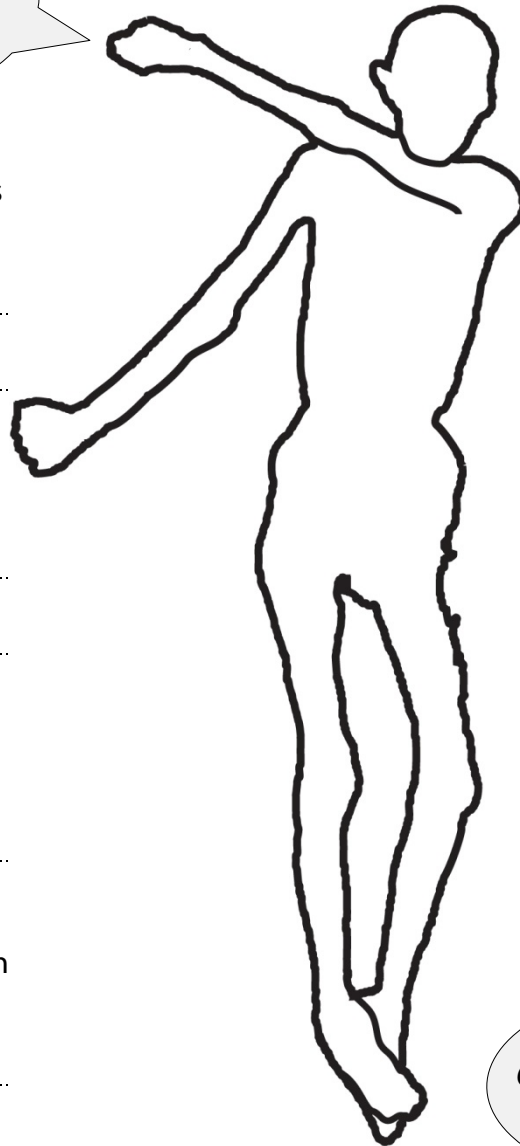
## Neolithic Man

How old is the Ötzi mummy?

.....  
.....

Ötzi's body is very well preserved. Why didn't microorganisms (that can cause decay) grow in his freeze-dried body?

.....  
.....



**Did you know?**  
A paper published in 2016 shows that Ötzi also carried *H. pylori*, a bacteria associated with stomach ulcers!

## DNA

Scientists identified DNA from different bacteria and other living things. What two **bacterial illnesses** did the DNA evidence reveal?

.....  
.....

What parasitic infection (not caused by bacteria) did Ötzi have?

.....  
.....

## Ötzi's Last Days

Linking ..... with ..... provided insight on where Ötzi spent his final days.

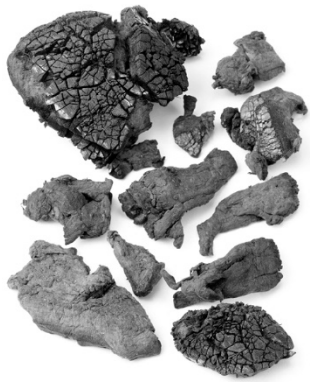
**What did Ötzi eat** about 2 hours before died?

.....  
.....

**Did you know?**  
Ötzi was an omnivore. This means he ate both plants and animals.

# ÖTZI THE ICEMAN

## His clothes and equipment

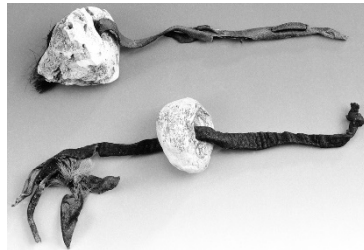


### Fungus

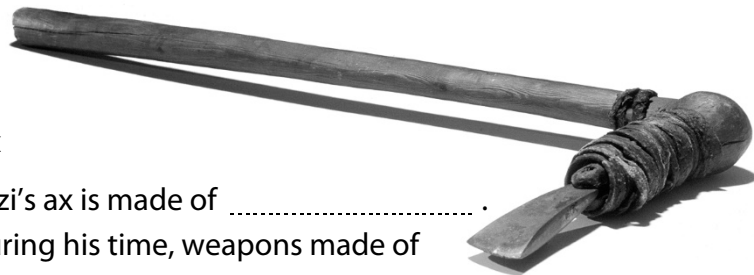
There was tinder fungus in Ötzi's belt pouch. What was this used for?

.....  
.....

Ötzi carried hide strips tied to a lump of polypore fungus. What properties are this fungus known to have?



.....  
.....



### Ax

Ötzi's ax is made of .....  
During his time, weapons made of this material were symbols of ..... and .....



Stand next to Ötzi. Are you  
 taller or  shorter than Ötzi?  
How tall do you think he was?

.....

### Grass Matting

Ötzi carried a grass mat with him. He may have used this item as:.....

.....  
.....



### Shoes

Ötzi was fully clothed when he died and he wore sophisticated shoes. List the materials used to make the shoes:

.....  
.....  
.....



# ÖTZI THE ICEMAN

## What do variations in Ötzi's DNA reveal about his traits?

Eye color:.....

Lactose Intolerant:     Yes         No

Blood Type:.....

Heart Disease:         Yes         No

## What does Ötzi's DNA reveal about his origins and lifestyle?

Refer to the maps on the DNA panel. They show how farming and agriculture may have replaced hunting and gathering over time.

**CIRCLE** the area that represents where farming began



**DRAW ARROWS** showing where farming spread



Today, Ötzi's paternal (Y-chromosome) DNA type is rare. What might have happened after Ötzi's time to change the gene pool in his region?  
(Use Map 3 on the panel as a reference.)

.....