



## *The Link*

### *Educator's Guide*

History™, together with the University of Oslo and the Senckenberg Research Institute, has announced the groundbreaking finding of a 47 million year old fossil that will revolutionize the way humans understand our link to other primates. Dr. Jorn Hurum at the University of Oslo was stunned when he discovered this amazingly intact fossil at a fair in Germany. After an examination, he confirmed that the remains of this primate are an extremely well-preserved and rare find. Knowing that this fossil, nicknamed Ida, could hold answers to the connections between humans and other primates, he quickly assembled a world-class team to carefully study the specimen. *The Link* follows Dr. Hurum and his team as they peel back the layers of time, revealing astonishing new information about early primates and the path to humankind by studying this remarkable 95% intact fossil.

Throughout the world, scientists and archeologists are constantly searching for traces of evidence that will help explain the origins of humankind. In the 1970s, scientists pinned down the connection between apes and humans through a 3.2 million year old fossil they named Lucy. But critical questions remain about how and when humans and apes transformed from other primate species. Now, the discovery of Ida will turn much of what we know about the links between humans and primates on its head, giving us insights into the evolutionary process 44 million years before Lucy walked the Earth. Similar to a lemur, Ida has characteristics of a transitional species, tying her monkey-like species to the primates which followed her. *The Link* explains how Ida was preserved in the Messel pit in Germany, and what scientists learn as they undertake path-breaking research on this specimen. This film is an excellent opportunity for educators and students to follow along and view history in the making!

#### **Curriculum Links:**

This program would be an excellent contribution to History, Science, Anthropology, and Paleontology courses and course units. It is appropriate for middle school, high school,

and college students. It fulfills the following standards as outlined by the National Council for History Education: (1) Civilization, cultural diffusion and innovation, (2) Comparative history of developments (3) Human interaction in the environment.

**Vocabulary and Identification Terms:**

Using the dictionary at [www.merriamwebster.com](http://www.merriamwebster.com), an internet resource or encyclopedia, students should define or explain the significance of the following terms:

Anthropoids  
Eocene  
Forensic  
Fossil  
Magma  
Morphology  
Omnivorous  
Paleontology  
Primate  
Prosimians  
Talus

**Discussion Questions:**

1. What were some of Dr. Hurum's first clues that he had discovered something amazing when he came across the 47 million year old fossil?
2. Why was the fossil, nicknamed Ida, so well-preserved? What are some of the other findings scientists have located in the Messel pit?
3. What can scientists learn from studying Ida's teeth? Why do you think they contain so much information about the possible link between humans and other primates?
4. Why is it significant that Ida did not have a claw? What can scientists conclude from this finding?
5. What was the Eocene era, and what was life like during that time period according to this documentary?
6. Scientists note that Ida has characteristics of both prosimians and anthropoids. Why is this significant?
7. What does it mean to call Ida or other fossils a "transitional species"?
8. How old was this specimen at the time of her death? How do scientists think she died?
9. Why was the fossil's ankle bone a major clue in tracing its link to humans?
10. How does the discovery of the Ida fossil add to Darwin's understanding of the evolution of primates?

**Extended Activities:**

1. The 47 year old fossil nicknamed Ida was preserved in the Messel pit in Germany. Online or through library research, ask students to find out more about this location and the other amazing things scientists have discovered in the pit. Then,

- ask them to write a 2-3 page essay about this deep quarry and why the conditions allowed for the amazing preservation of ancient fossils.
2. Scientists have dated the Ida fossil to the Eocene era. Ask students to research this time period and learn more about what Earth was like during this era. Then, ask them to imagine they were a scientist working on Dr. Hurum's team. Have students write a letter, newspaper article, or journal entry describing the Eocene era.
  3. Scientists in this documentary compare the "Lucy" skeleton discovered in the 1970s in Africa with the Ida specimen. Ask students to break up into small groups. Students should review what they learned about Ida and Lucy, and then do poster presentations comparing and contrasting these findings and what we have learned from both. Students can present this information in Powerpoint presentations, on poster-board, or other methods, and share their presentations with the larger class or group.
  4. Throughout this film, scientists attempt to flesh out what Ida actually looked like when she was alive. Based on what they learned from watching this program, ask students to draw, paint, or create 3D models of the Ida fossil.

### **Additional Resources:**

#### ***Books and Articles:***

Arango, Tim. "Seeking a Missing Link, and a Mass Audience." The New York Times, May 19<sup>th</sup>, 2009.

Franzen JL, Gingerich PD, Habersetzer J, Hurum JH, von Koenigswald W, et al. 2009 Complete Primate Skeleton from the Middle Eocene of Messel in Germany: Morphology and Paleobiology. *PLoS ONE* 4(5): e5723.

Palmer, Douglas, editor. *Encyclopedia of the Prehistoric World*. (Chartwell Books, 2007).

Prothero, Donald R. *Evolution: What the Fossils Say and Why it Matters*. (Columbia University Press, 2007).

#### ***Websites:***

Peer-reviewed article by Dr. Hurum and team:

<http://www.plosone.org/article/info:doi/10.1371/journal.pone.0005723>

The Messel pit World Heritage site page:

<http://worldheritagesite.org/sites/messelpit.html>

More information about early primates:

[http://anthro.palomar.edu/earlyprimates/early\\_2.htm](http://anthro.palomar.edu/earlyprimates/early_2.htm)

The American Museum of Natural History site:

<http://www.amnh.org/>

BBC site on the Messel pit and fossil findings:

<http://news.bbc.co.uk/2/hi/science/nature/8057465.stm>