

PREDATOR X

EDUCATOR'S GUIDE

Is it still possible for humans to find out about species we never new existed? *Predator X* tells the story of one amazing breakthrough that suggests that this possibility is still very real. On the remote archipelago of Svalbard, just 800 miles from the North Pole, a team of paleontologists led by Dr. Jørn Hurum have made a remarkable find. Buried beneath the icy landscape of the Norwegian Arctic are the remains of a huge creature from the distant past. *Predator X* is a two-hour special presentation which tells the story of this exciting new discovery that can redefine our knowledge of the Jurassic period.

Viewers follow along as paleontologists analyze the remains of this powerful and massive sea predator. Teams of scientists excavate it, determine its significance, and use cutting-edge technology to re-create its astounding power. *Predator X* follows this expedition each step of the way, from painstaking field research to the stunning revelations about how this predator attacked its prey, navigated through waters, and how it would compare with mammals alive today. This program gives students an excellent opportunity to explore the methods scientists and historians use to uncover new information about the past and to learn about animals and landscapes of long ago.



Curriculum Links:

Predator X would be useful for History, Science and Technology, Social Studies, and Geography courses, and for course units on the Environment. It is appropriate for middle school and high school students and it fulfills the following guidelines outlined by the National Council for History Education: (1) Comparative history of major developments; (2) Civilization, cultural diffusion and innovation; and (3) Human interaction with the environment.

Vocabulary:

Using a dictionary (www.merriam-webster.com) or an encyclopedia, students should define or explain the significance of the following terms:

amenities

biomechanics

CT (CAT) scan

inhospitable

Jurassic

paleontologist

permafrost

Plesiosaur

Pliosaur

predator

temperate

transducer





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Discussion Questions:

1. What is a paleontologist? Why do you think paleontologists were so interested in learning about Predator X and what do you think were their main goals in unearthing its remains?
2. Where is Svalbard? Why do you think researchers have not been able to dig up the remains of Predator X until now?
3. What kinds of support do you think paleontologists needed before they could start this mission?
4. What are some of the things paleontologists can learn by analyzing bones and bone fragments with just their eyes and basic microscopes? What kinds of things are they unable to learn without more sophisticated technology?
5. What is biomechanics, and how was it used in this documentary to uncover more information about Predator X?
6. What kinds of technologies and techniques are used by the paleontologists to learn more about the habits, skeletal structure, and prey of Predator X?
7. Why do you think the researchers in this documentary used CT scans to analyze the predator's remains? What did they learn from this method of research?
8. How did Dr. Hurum and his team learn about the bite force of Predator X? What did they learn about how the construction of the predator's jaw contributed to its bite force?
9. What did you learn from this documentary about how Predator X was able to maintain dominance? Which aspects of its anatomy and behavior do you think were most important?
10. What do you think were the most important findings of Dr. Hurum and his team as they concluded their research about Predator X? Do you think their findings have transformed our understanding of the Jurassic period? Discuss.



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Extended Activities:

1. In order to start this mission to dig up and examine the remains of Predator X, Dr. Hurum and his team needed to get funding, outside support, and interest in their mission. Ask students to imagine that they were in Hurum's position and were given the task of securing funding for this project. Ask them to write up a proposal or grant to an organization describing the project, what they hope to find, and the value of the conclusions that can be drawn from this examination of Predator X.
2. This documentary focuses on a single question: are the remains discovered by paleontologists on Svalbard evidence of an "ultimate predator"? Ask students to break up into small groups and debate this question. Then have them write short essays or position papers on whether they think Dr. Hurum and his team have discovered the ultimate predator. Students can present their arguments in mock debates or they can refine their arguments in short 2-3 page papers.
3. The use of new technologies played a critical role in the ability of paleontologists to re-create Predator X and describe its habits and characteristics. Ask students to write a short essay about one of the technologies used in this documentary to re-create Predator X and how this technology helped us learn new things about this species (examples: CT scans, computer-generated imagery, biomechanical engineering, etc.).
4. Ask students to break up into small groups and design a blueprint of a machine that would be able to capture Predator X using today's technology. Ask students to be creative in brainstorming their designs, but to be sure to use plausible materials and techniques in developing these hypothetical machines. Students can be encouraged to design green machines that would have a limited carbon footprint or use alternative power technologies and can do additional research online or at the library to develop these plans. Ask students to present their designs in PowerPoint format, on posterboard, or any other format and to pick one representative to share these ideas with the larger class or group.

Books:

Davidson, Jane. *A History of Paleontology Illustration* (Indiana University Press, 2008).

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

Wilford, John Noble. "From Arctic Soil, Fossils of a Goliath That Ruled the Jurassic Seas"
(The New York Times, March 16, 2008).

Websites:

More background on Predator X from HISTORY™:

www.history.com/content/predatorx/predator-x-videos

Natural History Museum, University of Oslo:

www.nhm.uio.no/pliosaurus/english

More information about paleontology:

www.paleoportal.org

