THE HISTORY CHANNEL CLASSROOM PRESENTS

CRUDE

It is a substance that touches nearly every aspect of our lives, and yet most of us know virtually nothing about it. From our food to our cars to our clothing, crude oil contributes in some way to the overwhelming majority of the products and vehicles that we rely on each day. It is an energy source unrivaled in its efficiency and power – and is the driving force behind modern industries and economies. Yet some of the most knowledgeable experts predict that we have already passed peak production of this vital natural resource. And while the world is growing increasingly dependent on oil and its byproducts, the supply is becoming more limited each day.

This one and a half hour documentary traces the history of oil through the centuries, highlighting key milestones in the development of this fuel. Bringing the story up to the present day, *Crude* examines the effects of oil dependency on our climate. With the burning of crude, carbon emission has reached dangerous levels in the 21st century – and it continues to rise. The result? The dramatic increase of green houses gases in our atmosphere leads to an uptick in global temperatures and threatens our stable climate, and ultimately, our way of life. After retracing the transformation of this important fuel over time, *Crude* goes on to highlight some of the profound threats we may face in the future, and gives students an excellent opportunity to debate one of the most critical issues facing us today.

CURRICULAR LINKS

Crude meets National Council for History Education requirements for (1) Civilization, cultural diffusion, and innovation, and (2) Human interaction with the environment. *Crude* is appropriate for high school students studying the sciences, current events, economics, political science, technology and social studies.

VOCABULARY

Using a dictionary (www.merriamwebster.com) or an encyclopedia, students may want to define or explain the significance of the following terms from this program:

Proliferate	Fossil fuels
Volcanism	Phytoplankton
Anoxic	Replete
Stagnation	Refinery
Equilibrium	Stagnant
Green house gas	Noxious

DISCUSSION QUESTIONS

1. Where does oil come from? What is the basic material that makes up this vital substance?

2. What role does carbon play in the creation of crude oil? What is unique about this essential element?

3. How does phytoplankton and bacteria in nutrient-rich water contribute to the formation of oil beneath the ocean floor?

4. How does the energy in carbon-rich shale transfer into crude? Where does this process take place?

5. Why is oil so incredibly valuable as an energy source? What is exceptional about its energy density?

6. How much oil does the average American use each day? How is this consumption broken down?

7. What is the largest oil field on earth? Where is it located? How did the discovery of the Gwar reservoir affect the global demand for oil?

8. When did the U.S. oil supply peak? When is the global oil supply predicted to peak? What does this mean for the cost of oil?

9. What do fossilized ginkgo plants tell us about the carbon dioxide levels of the Jurassic period? What did this super-greenhouse world look like?

10. What are the global repercussions of our oil use? What does this mean for our climate in the future? What are the signs that this climate change has already begun?

EXTENDED ACTIVITIES

1. Crude oil is derived over millions of years from a long and complex process. Based on what you've learned from watching *Crude*, write a concise, step-by-step timeline or flow chart for the evolution of crude, beginning with a description of the prehistoric atmospheric and oceanic conditions, and ending with a modern use of this vital energy source. Be sure to include the materials and processes that shape the production of crude oil.

2. *Crude* ends with a grim outlook for the future of the human race, as well as our planet. From the depletion of the essential crude oil supply to the ruin of our climate through high levels of carbon emission, *Crude* suggests that we may well face a dangerous future. Skip ahead to the year 2050. Write a newspaper article detailing an ingenious alternative energy source powers our homes, cars and industry. Describe how the world has changed without its dependence on crude oil and discuss measures humans have since taken to dramatically reduce their carbon footprint in everyday lives.

3. *Crude* followed the incredible journey of a single carbon atom from the Jurassic period through the modern day. Use your imagination and write a 1-2 page creative story about a different carbon atom's journey, beginning in prehistoric times and ending in the

present. Describe the form carbon takes at 5-10 stages throughout these miraculous transformations- and make sure to include its time spent bound up as an essential component of crude, and ultimately the form it takes in an oil byproduct today.

REFERENCES

Websites

The Energy Information Administration's description of how oil is formed, where it is found, and how it is refined.
http://www.eia.doe.gov/kids/energyfacts/sources/non-renewable/oil.html

The Energy Institute details the basics of crude oil.
http://resources.schoolscience.co.uk/ExxonMobil/infobank/4/2index.htm?crude.html

The Northeast Sustainable Energy Association's site on alternative energy sources.
http://www.nesea.org/energy/info/

Books

Deffeyes, Kenneth S. *Beyond Oil: The View from Hubbert's Peak* (Hill and Wang, 2005)

Roberts, Paul. *The End of Oil: On the Edge of a Perilious New World* (Mariner Books, 2005)

Shah, Sonia. *Crude: The Story of Oil (*Seven Stories Press, 2006)

Simmons, Matthew R. *Twilight in the Desert: The Coming Oil Shock and the World Economy* (Wiley, 2006)