

Information Sheet

Module Title: Cryobiology

Module Description (overview):

Students have just finished units on States and Properties of Matter. They will take the concepts learned and expound upon them by examining the field of cryobiology. Cryobiology is the study of living things at very low temperatures. This science is filled with many technological advances. Students will examine the pros and cons of the techniques used and formulate an argument based on scientific facts.

Template Task (include number, type, level)	Teaching Task
<p>Task 2 Template (Argumentation/Analysis L1): [Insert essential question] After reading _____ (literature or informational texts), write an _____ (essay or substitute) that addresses the question and support your position with evidence from the text(s).</p>	<p>Should cryobiology techniques be used to preserve living matter for future use? After reading texts on cryobiology, write an article that addresses the question and support your position with evidence from the texts.</p>

Grade(s)/Level: Grade Eight

Discipline: (e.g., ELA, science, social studies, other?) Science

Course: Physical Science

Author(s):

Contact information:

E. Materials, references and supports: List the materials you will need and students will use. Provide citations.

For Teachers and Students

Text for teaching task:

“Cryobiology.” *Jrank.org*. Web. 11 Apr. 2011.

<http://science.jrank.org/pages/1888/Cryobiology.html>

“Cryobiology: Opposition.” *Cryobiology*. Web. 13 Apr. 2011.

<http://cryobiology.synthasite.com/ethics.php>.

“Cryobiology.” *World of Invention*. Thomson, Gale, 2005-2006. BookRags. Web.

11 Apr. 2011

“Freezing for the Future: Life-Saving Cryobiology.” Research/University of Kentucky. Web. 13 Apr.

2011. <http://www.research.uky.edu/odyssey/fall00/freezing.html>.

Immortality on Ice. Discovery Channel Video, 1996. Videocassette.

The World of Absolute Zero: Films for the Humanities & Sciences, Inc. Videocassette.

Resources:

EasyBib (Free Bibliography Maker): <http://www.easybib.com/>

Oasis (A Personalized Learning Platform): <http://alearningoasis.com/>

Paideia Class (Active Learning): <http://www.paideia.org/>

Text Structures Chart

Argumentative Task Sheet

Cryobiology Directions for Reading and Taking Notes

Cryobiology Module Quick Write

Cryobiology – Argumentative Module Notes Sheets

Cryobiology Module – What is Needed Sheet

Vocabulary Sheet for Writer’s Notebook

Argumentative Essay on Zoos (As a Sample) <http://www.tesoltasks.com/FivePara.htm>

Cryobiology Argumentative Module Brainstorming Article Organizer

List of Common Transitions

Revising the Rough Draft Sheet

Why Cite Sheet

Cryobiology Essay Rubric

Cryobiology

Scientists are continually discovering new ways to improve our health, lives, and well-being. Cryobiology is the study of the effects of very low temperatures on living things, and can be used in many different ways. Blood could be cryobiologically preserved and saved in blood banks, Organs could be frozen and stored for a later transplantation. Embryos of various animals species can be preserved. Cryobiology techniques are revolutionary and should be used to preserve living matter.

First of all, cryobiology can be used to store blood in blood banks for a longer period of time. When not frozen blood can only last for a short period of time. If all the blood was frozen this way , there would be much more stock on hand. Also, less donated blood would go to waste. This speedier process could save lives.("Freezing")

Organs can be cryobiologically preserved, as well. Like blood, organs last a very short period of time when not cryobiologically frozen. It is difficult to find perfectly matched organs for a patient, but if they were frozen the doctor would almost always have one ready right away. There would be no need for a waiting list to receive and organ. Using cryobiology, no child, adult, or elder will ever be left waiting for an organ.("Cryobiology Jrank")

Last, animal embryos can be stored and used in multiple ways. "In agriculture, cryopreservation allows livestock breeders to mass-produce the embryos of genetically desirable cattle." ("Cryobiology Jrank") Breeding the best animals will increase the success of the meat industry. Most importantly, endangered species can be saved from extinction. Cryobiology can be used to help more than just humans.("Cryobiology Jrank")

Cryobiology should be used to preserve living matter. It could be used to store organs, embryos, and so much more! It can save lives, time, and money. Cryobiology can change the medical world as we know it.

Bibliography

Cryobiology." Jrank.org. Web. 11 Apr. 2011.

<http://science.jrank.org/pages/1888/Cryobiology.html>"

"Cryobiology: Opposition." Cryobiology. Web. 13 Apr. 2011.

<http://cryobiology.synthasite.com/ethics.php>.

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"Freezing for The Future: Life-Saving Cryobiology." Research | University of Kentucky. Web. 13

Apr. 2011. <http://www.research.uky.edu/odyssey/fall00/freezing.html>.

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The World of Absolute Zero. : Films for the Humanities & Sciences, Inc. Videocassette.