

Name: _____

Period: _____

Nova: "Absolute Zero"

PART 1 – THE CONQUEST OF COLD

1. Cornelius Drebbel had a wager with King James I in 1620. What was it?
2. What does adding salt do to ice?
3. What is Robert Boyle primarily famous for?
4. When were the first accurately calibrated thermometers made, and where?
5. What was the biggest problem with these first thermometers?
6. How were thermometers made smaller?
7. Describe the 18th century theory that rivaled the theory that particles slow down as they cool and speed up when they warm?
8. What was the fate of Lavoisier?
9. Who or what did Rumford leave his wife for?
10. What was the name of Tudor's ship for transporting ice?
11. What was the "single most important economic problem in Europe"?
12. Carnot found out that more work could be done by an engine if..... :
13. How did the SI unit for energy become the Joule?
14. What is the First Law of Thermodynamics?
15. What is the Second Law of Thermodynamics?
16. Why do some people still call their refrigerator the "ice box" (usually older people)?

17. What happened to the rubber ball soaked in liquid Oxygen as demonstrated by James Dewar?

18. What was the lowest temperature reached by Faraday?

19. Who was the first to liquefy Hydrogen? (Circle one)
a) Kamerlingh Onnes b) Dewar c) Faraday

ALSO, what was his motivation for doing so?

20. At what temperature did Onnes' team have to reach to liquefy Helium?

21. Why did Dewar's low temperature research end?

22. Who was the first to use the term "superconductivity"?

23. What is a superfluid?

24. Try to describe, in 10 words or less, a Bose-Einstein condensate?

25. What were scientists at the UC Boulder and MIT competing to do?

26. Who "won" the "race" and what was the atom used in the condensate?

27. How does the B-E condensate provide support for quantum mechanics?

28. Was Hydrogen ever B-E condensed?

29. What is the next big step in the practical application of B-E condensates?