2015 Ag Literacy Project - Hans Krebs *by C. Kohn*

Partner Names (first/last):

Hour Date: Why late? Score: + ✓ -

**Directions**: after reading Hans Krebs and the Puzzle of Cellular Respiration, complete the questions below. If you don’t know the meaning of a word, use a dictionary (online or an actual book). Note that the Krebs Cycle is the same as the TCA cycle in cellular respiration.

1. Summarize the main idea of this entire reading in four sentences using your own words.

1. Which would be the primary reason for talking about WWII in a scientific article?
A. To demonstrate how it was instrumental in understanding cellular respiration.
B. To show how it related to battlefield medicine.
C. To demonstrate the difficulty Krebs faced in his life as a Jewish scientist.
D. To show how diseases in the mitochondria can be prevented because of modern medicine.

How do you know that the other options for this question are incorrect? List each of the incorrect options and state why they are incorrect.

\_\_\_\_\_ Why incorrect?

\_\_\_\_\_ Why incorrect?

\_\_\_\_\_ Why incorrect?
2. What is the main idea of the introduction?
3. The phrase "...facing a wrenching forced emigration,..." could be reworded to say:
A. observing a mechanical tool.
B. understanding a scientific apparatus.
C. seeing a painful operation.
D. undergoing a heartbreaking escape.
4. Summarize how Krebs life changed between 1933 and 1953.

In 1933, Krebs

In 1953, Krebs
Support your answer using evidence from this reading.
5. Krebs grew up in , a town that was
6. Krebs entered medical school shortly after but
7. What was Warburg’s relationship to Kreb’s?
8. Warburg was described as autocratic. This means that he was
9. Why was Warburg an excellent teacher?
10. Krebs wanted to emulate Warburg; what does this mean?
11. Summarize how Warburg was able to measure oxygen in his cellular respiration experiments. Use all the space provided and write your answer in your own words:
12. When Krebs fled the Nazis, what was the most valuable thing in his cargo?

Why would have these have been the most valuable items?
13. How does the Warburg manometer work? Summarize in your own words:
14. How long had scientists been studying respiration prior to Krebs’ work in 1930?
15. Summarize what was known by scientists about respiration by the 1700s:
16. In both combustion and respiration, a fuel is to produce
17. What does oxidized mean?
18. Summarize what was known by scientists about respiration by the 1800s (19th cent):
19. With the rise of cell theory, biologists realized that respiration occur
20. How did scientists know that respiration occurred in a series of small steps? Explain:
21. What was the main goal of 20th century biologists in regards to respiration?
22. Summarize the work and findings of Buchner:
23. How did Warburg respond to Krebs’ ideas about testing respiration?
24. Buchner and other scientists realized what two key ideas about respiration in all cells?

1

2
25. Each chemical step in the pathway had to follow

but just because it was did not mean it was . In fact, most

 turned out to be .
26. Which of the following could be used in place of “plausible”?
	1. Correct b. Reasonable c. Achievable d. Impossible
27. Summarize how Krebs and other biochemists tested potential “fuels” to find out if they’d “burn” using your own words:
28. What is an intermediate compound?
29. Why did Krebs measure the oxygen consumed? How did this relate to respiration?
30. Summarize the information provided on page 76 (The Search for Intermediate Compounds):
31. What were the unexpected results that Krebs discovered (p 76)?
32. What did Albert Szent-Gyorgyi propose for an explanation for these unexpected results?
33. What is a catalyst?
34. Summarize the problem that Krebs faced with citrate:
35. What did Knoop and Martius propose for a pathway?
36. What was wrong with their proposal?
37. Summarize the simple experiment that Krebs designed to test their proposal:
38. How did the author use a mountain stream analogy to explain the work of Krebs?
39. What did Krebs find when he tested the ideas of Knoop and Martius?
40. What was wrong with the Knoop-Martius hypothesis?
41. At this point, Krebs began to think in terms of a instead of a
42. Summarize the conclusion of this reading (p. 79). What happened? What did Krebs discover? Why did it matter? Use all the space provided. Do not copy the text word for word – write this in your own words.