

A Spoonful of Sugar Helps the Temperature Go Down

Name: \_\_\_\_\_

Read p. 23-27 skip to p. 33 (unless you want to read about the change from traditional thought on global climate change which is very cool!)

1. How many people today have diabetes \_\_\_\_\_ (look it up!) and how many are expected by 2030? \_\_\_\_\_
2. Diabetes is all about what relationship?
3. When is glucose produced?
4. What are 3 reasons why glucose is essential to survival?
  - a.
  - b.
  - c.
5. Can we store glucose? How and Where?
6. Why do you think we store glucose in these places?
7. What is the scientific name for diabetes?
8. Describe the main symptom for diabetes.
9. Describe what is broken in diabetes.
10. Diabetes can lead to .....

11. There are three types of diabetes.

What is it?	What causes ...	Treatment(s).....
Type 1		
Type 2		
Type 3		

12. What is meant when we say a disease is autoimmune?
13. Describe the different prevalence's between Type 1 and Type 2.
14. How did Northern European's survive the Younger Dryas?
  - a.
  - b.
15. Describe the effect of cold on humans.
16. Describe what happens to human tissue when it freezes.
  - a.
  - b.

17. How does our body manage cold?
- a.
  - b.
  - c.
18. What is meant by natural triage?
19. Describe the hunter's response or the Lewis wave. What is the benefit?
20. Who has brown fat, what characteristics are unique to Brown fat and why is this a benefit?
21. List ways we respond to cold.
- a.
  - b.
  - c.
  - d.
22. What seems to be the trend between cold and diuresis? Why do we need to pee when we are cold?
23. What is significant about grape physiology when there is a freeze? Give two ways grapes protect themselves.
- a.
  - b.
24. Sugar is a natural \_\_\_\_\_ causing \_\_\_\_\_
25. Describe the significance of the wood frog, *Rana sylvatica* in its unique ability to freeze itself during winter.
- a. What mechanisms allow the frog to survive
    - i.
    - ii.
    - iii.
    - iv.
26. Is it a coincidence that the people most likely to have a genetic propensity for a disease characterized by exactly that (excessive elimination of water and high levels of blood sugar) are people descended from exactly those places most ravaged by the sudden onset of an ice age about 13,000 years ago? Identify several pieces of evidence to support this controversial idea.

