Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Date:\_\_\_\_\_\_\_\_\_\_\_Period\_\_\_\_\_\_

Cracking Your Genetic Code

Video Questions

1. A person’s entire genetic code can fit on a flash drive. True or false?

2. How many letters are in a person’s genome? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

4. Francis Collins was interviewed for this program. What is his job?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

5. Who is Andrew Schmitz, and what symptoms did he display? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

6. How long did it take and how much did it cost to complete the 1st human genome sequence (notAndrew’s)?

How long? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ How many $ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

7. What are the 4 letters in the DNA alphabet? \_\_\_ \_\_\_\_ \_\_\_ \_\_\_

8. What happens if DNA is copied incorrectly?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

9. Does Dr. Jacob think it is possible that Andrew might have a genetic problem for which no treatment exists? Y or N (Circle one)

10. Some companies provide partial genome sequencing. What is the name of one of the best known of these companies?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

11. What odds were given for Jay Adelson someday developing Parkinson’s?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

12. How many DNA analysis companies allow you to go directly to them to get genotyping analysis done without requiring a doctor’s referral?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

13. Francis Collins had DNA analysis done by three different companies. What disease did the analysis suggest he was at risk for\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, and how did he alter his life style to improve his odds of not getting this disease? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

14. James Watson (of Watson & Crick fame) did not want to know about one of his gene sequences. Which gene was this? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

15. To what disease has a variant of this gene been linked? \_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

16. There is a subset of disease related genes that are very likely to make you sick, even if you only have one of them. These are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ disease genes.

17. Why did Katie Moser decide to get tested for the disease? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

18. What is an actionable gene? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

19. How long did it take and how expensive was the Andrew’s DNA sequencing?

How long:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Cost: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

20. Another young man, Nicholas Volker, had a genetic health problem. What gene was responsible for Nick’s health problems? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

21. What treatment appears to have saved Nick? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

22. From what disease was Michael McCarrick suffering? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

23. What drug is/was Michael taking? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

24. While Paul does appear to be showing real improvement in his health as a result of taking Kalydeco, what figure is given as a possible annual cost for Kalydeco? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

25. At this price, what would it cost Paul to take this drug for 20 years?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(Show calc.)

26. What type of cancer did Tom Garpestad develop?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

27. When it is discovered that a melanoma patient’s cancer has spread, how long do they have to live?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

28. What term is used to describe the process of cancer cells spreading from one location to other sites in the body?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

29. What gene was described in the program as being the melanoma gene \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

30. In one word, what can cancer cells do to overcome the effects of the drug? \_\_\_\_\_\_\_\_\_\_\_\_\_

31. How many months of quality life are patients getting from the drug treatment? \_\_\_\_\_\_\_\_\_

32. At what cell stage in embryo development is a single cell removed from the embryo to determine if is contains a genetic disease? Circle one: 1 2 4 8 16 32

33. How many diseases are Mark Hughes and his team testing for? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

34. Some people have concerns that genetic testing for reproductive purposes will be misused. What science fiction movie was cited in this regard?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

35. Briefly, how did the Beery twins’ parents know their children had a health problem? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

36. What happened to Alexis around age 5 that suggested the original diagnosis might be wrong?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

37. What was Retta Beery’s response to Alexis’ worsening condition? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ .

38. How did Alexis respond to the new treatment? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

39. What did Joe Beery (the father) do in response to Alexis’ continuing problems? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

40. What was discovered about the twins from the answer to #41? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

41. What does Joe indicate saved Alexis’ and Noah’s lives? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

42. What did geneticist Elizabeth Worthy find in Andrew’s genome? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

43. Did this finding lead to a cure for Andrew? Y or N

44. What does Dr. Collins give as an important reason to know your genome? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Not for credit issues to consider on your own:

If you had a loss-of-function genetic disease, would that influence your interest in having children?

Has learning about these people changed your level of interest in genetics?

Would you like to have your genome sequenced?

If your answer to the above question was yes, how much would you consider to be a reasonable amount to pay for the sequencing?