**“Bill Nye: Genes” Video Worksheet**

1. Where do your genes come from?
2. What is inside every cell in your body?
3. What does DNA stand for?
4. What did Bill climb to get out of the Nye Lab?
5. How long is the DNA string model of science?
6. How many times longer is DNA than it is wide?
7. How does Bill define a Gene?
8. Why is the white blood cell dark on the computer screen?

1. What does the nucleus of the cell contain?
2. What can you do with DNA after you take it out of an organism?
3. What 2 organisms were combined to create the message to Bill in the petri dish?
4. What do genes do?
5. Mom tells Richie: Genes are the set of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ that get passed down from \_\_\_\_\_\_\_\_\_\_\_\_\_to child. In the process, of course, the genetic material is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in new ways, which is why people bear resemblance to their \_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_without looking like any one relative in particular.
6. What analogy does Bill use to describe the human set of chromosomes?
7. What is each chapter analogous to?
8. How many genes to humans have?
9. What do cells in the body not need to do? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
10. Most species have fewer than \_\_\_\_\_\_\_\_\_chromosomes but thousands and thousands of genes
11. Bill calls the babies “bundles of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_”
12. The reproductive cell that a mother donates to her child is called the \_\_\_\_
13. The reproductive cell that a father donates to his child is called the \_\_\_\_\_\_
14. The number of cells needed to make a baby is: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
15. DNA is the \_\_\_\_\_\_\_\_\_\_\_ print for the future
16. Earlobes can be \_\_\_\_\_\_\_\_\_\_\_\_\_\_or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
17. A \_\_\_\_\_\_\_\_\_\_is a piece of the \_\_\_\_\_\_\_\_\_\_\_ molecule
18. The four chemicals of DNA are
19. The number of chromosomes that a mule foal has is \_\_\_\_\_\_
20. The number of chromosomes that a horse has is \_\_\_\_\_\_
21. The number of chromosomes that a donkey has is \_\_\_\_\_\_
22. In the demonstration, the \_\_\_\_\_\_\_\_\_\_\_\_\_\_ gene for rolling your tongue is represented by the letter “R”
23. In the demonstration, the \_\_\_\_\_\_\_\_\_\_\_\_\_\_ gene for rolling your tongue is represented by the letter “r”
24. If a person has the pattern RR, then the person \_\_\_\_\_\_\_\_ roll their tongue
25. If a person has the pattern Rr, then the person \_\_\_\_\_\_\_\_ roll their tongue
26. If a person has the pattern rr, then the person \_\_\_\_\_\_\_\_ roll their tongue
27. What is special about the turtle in this movie?

**“Bill Nye: Genes” Video Worksheet -- ANSWERS**

1. Where do your genes come from? *Your parents*
2. What is inside every cell in your body? *Chromosomes*
3. What does DNA stand for? *Deoxyribonucleic Acid*
4. What did Bill climb to get out of the Nye Lab? *A DNA molecule*
5. How long is the DNA string model of science? *About 20*
6. How many times longer is DNA than it is wide? *About 200 km*
7. How does Bill define a Gene? *A specific piece of DNA*
8. Why is the white blood cell dark on the computer screen? *Because it has chromosomes in it.*
9. What can you do with DNA after you take it out of an organism?
   1. *Cut it into smaller pieces*
   2. *Place into another organism*
10. What 2 organisms were combined to create the message to Bill in the petri dish? *Sea Jelly and a bacteria*
11. What do genes do? *They tell cells what to do*
12. Mom tells Richie: Genes are the set of chemical instructions that get passed down from *Parent* to child. In the process, of course, the genetic material is recombined in new ways, which is why some people bear resemblance to their *Parents* and *Grandparents* without looking like any one relative in particular.
13. What analogy does Bill use to describe the human set of chromosomes?

A set of books that have 23 pairs.

1. What is each chapter analogous to? A gene
2. How many genes to humans have? *80 000 genes*
3. What do cells in the body not need to do? *Read every gene in the whole cell.*
4. Most species have fewer than *100* chromosomes but thousands and thousands of genes
5. Bill calls the babies “bundles of  *Genetic Code”*
6. The reproductive cell that a mother donates to her child is called the *Egg*
7. The reproductive cell that a father donates to his child is called the *Sperm*
8. The number of cells needed to make a baby is: ***50 000 000 000 000***
9. DNA is the *Blue*  print for the future
10. Earlobes can be *Attached* or *Dangling*
11. A *Gene* is a piece of the *DNA* molecule
12. The four chemicals of DNA are
13. adenine
14. thymine
15. cytosine
16. guanine
17. The number of chromosomes that a mule foal has is *63*
18. The number of chromosomes that a horse has is *64*
19. The number of chromosomes that a donkey has is *62*
20. In the demonstration, the *Dominant* gene for rolling your tongue is represented by the letter “R”
21. In the demonstration, the *Recessive* gene for rolling your tongue is represented by the letter “r”
22. If a person has the pattern RR, then the person ***can***  roll their tongue
23. If a person has the pattern Rr, then the person ***can*** roll their tongue
24. If a person has the pattern rr, then the person ***cannot*** roll their tongue
25. What is special about the turtle in this movie? ***It has 2 heads***