# Genetic Mind Reader Answer Key

| Concept | Answer |
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| 1. A chromosome map of a species shows the specific physical locations of its genes and/or markers on each chromosome. | 1. Physical map |
| 2. A Chromosome map of a species that shows the position of its known genes and/or markers relative to each other. | 2. Genetic map |
| 3. The number of genes in human DNA. | 3. About 30,000 |
| 4. The techniques used to manipulate genes in an organism. | 4. Genetic engineering |
| 5. Short-term educational counseling process for individuals and families who have a genetic disease or who are at risk for such a disease. | 5. Genetic counseling |
| 6. A few of the estimated 5,000 hereditary diseases. | 6. Huntington disease, cystic fibrosis, and sickle cell disease |
| 7. The size of the human (*Homo sapiens*) genome. | 7. About 3 billion bases |
| 8. Number of pairs of chromosomes in a normal human cell. | 8. 23 |
| 9. Pieces of DNA, most containing information for making a specific protein. | 9. Genes |
| 10. One of the thread-like "packages" of genes and other DNA in the nucleus of a cell. | 10. Chromosome |
| 11. A large complex molecule made up of one or more chains of amino acids in a specific order. | 11. Protein |
| 12. The names of bases making up DNA. | 12. Adenine, Guanine, Cytocine, Thymine |
| 13. A disorder caused by a single base pair change in one of the genes that codes for hemoglobin. | 13. Sickle cell disease |
| 14. Permanent structural alteration in DNA. | 14. Mutation |
| 15. Common diseases arising from the interaction of several genes with environmental factors. | 15. Cancer, Alzheimer disease, and heart disease |
| 16. Separate compartment in the cell that contains 6 feet of DNA packed into 23 pairs of chromosomes. | 16. Nucleus |
| 17. Cells containing single sets of chromosomes. | 17. Egg and sperm cells (gametes) |
| 18. Knowing the DNA sequence of a gene. | 18. Reveals the amino acid sequence of the protein that the gene encodes |
| 19. An evolving technique used to treat inherited diseases by replacing, manipulating, or supplementing nonfunctional genes with healthy genes. | 19. Gene therapy |
| 20. Testing a population group to identify a subset of individuals at high risk for having or transmitting a specific genetic disorder. | 20. Genetic screening |
| 21. One-letter variations in the human DNA sequence that contribute to differences among individuals. | 21. Single-nucleotide polymorphism or SNP |
| 22. Study of genetic variation underlying differential response to drugs. | 22. Pharmacogenomics |

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| 23. A way of studying how large numbers of genes interact with each other and how a cell's regulatory networks control vast batteries of genes simultaneously. | 23. Microarray technology |
| 24. Technology that identifies mutations in genes. | 24. DNA microchip technology |
| 25. All the DNA contained in an organism or a cell. | 25. Genome |
| 26. Size of the mustard weed (*A. thaliana*) genome. | 26. 100 million bases |
| 27. Size of the bacterium (*E.coli)* genome. | 27. 4.6 million bases |
| 28. Size of the yeast (*S. cerevisiae*) genome. | 28. 12 million bases |
| 29. Size of the fruit fly (*D. melanogaster*) genome. | 29. 165 million bases |
| 30. Size of the laboratory mouse (*M. musculus*) genome. | 30. 3 billion bases |
| 31. Size of the roundworm (*C. elegans*) genome. | 31. 100 million bases |