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**Genetics: Do I Know The Answers?**

1. Which of the following correctly explains how traits are inherited independently of each other?

a. Separation of the alleles during gamete formation are independent of each other except when they are on the same chromosome.

b. Separation of the alleles during fertilization are independent of each other.

c. Separation of the alleles during fertilization are independent of any environmental factors.

d. Separation of the alleles during gamete formation are independent of any environmental factors.

2. What is the difference between incomplete dominance and codominance?

3. An individual has the genotype Aa. The capital “A” represents the:

4. The two alleles an individual has for a certain gene is called the:

An alien species exhibits codominance for their skin color. Individuals can be purple, orange, or purple with orange polka dots. P = purple, O = orange. A purple alien marries an orange alien.

5. What percentage of the children will be purple?

6. The longest phase of mitosis is \_\_\_\_\_.

7. Your somatic cells contain \_\_\_\_ chromosomes.

8. A normal human cell has 46 chromosomes. After a cell undergoes meiosis, how many chromosomes will the resulting gametic cells have?

9. The numbers in the diagram below represent the chromosome number found in each of the dog cells shown. The processes that are occurring at A and B are \_\_\_\_\_.



10. In which part of a plant would meiosis occur?

**Match** the word with the definition.

11. Help pull chromosomes apart a. centrioles

12. Two of these make one chromosome b. spindle fibers

13. Connects two chromatids c. chromatin

14. An organelle from which spindle fibers develop d. chromatids

15. Loose strands of DNA e. centromere

**Match** the phase with its description (the answers can be used more than once)

16. Time of growth a. prophase

17. Centrioles move to opposite ends of the cell b. anaphase

18. Chromatids are being pulled to opposite ends of the cell c. telophase

19. Chromosomes are at opposite ends d. interphase

 of the cell and are not moving anymore e. metaphase

20. Longest phase of those listed

21. Sister chromatids are split

22. Chromatin condenses into chromosomes

23. Not a part of mitosis

24. Chromosomes line up in the middle of the cell

25. DNA doubles in this phase

**Match** the division of meiosis with the description.

26. Results in two cells a. Meiosis I

27. Sister chromatids are together b. Meiosis II

28. Results in four cells

29. Two homologous chromosomes separate

30. Sister chromatids separate

31. Crossing over occurs in this division of meiosis

**Match** the type of cell division with the description.

32. Forms gametes a. Mitosis

33. Daughter cells are identical to parent b. Meiosis

34. Two new cells

35. Daughter cells are different from parent

36. Four new cells

37. Results in haploid cells

38. Which of the following is a form of sexual reproduction?

a. A sponge forming from a piece of the parent

b. A Raspberry bush growing from a piece of buried stem

c. A Yeast cell undergoing budding

d. A Rose flower producing pollen

39. Which of the following is an example of sexual reproduction?

a. division of an amoeba

b. joining of egg and sperm

c. growth of an organism

d. mitosis

40. How does asexual reproduction help the survival of a species?

**Match** the type of reproduction with the description

41. Gametes needed a. sexual reproduction

42. Creates genetic variation b. asexual reproduction

43. Genetically identical individuals

44. Mitosis

45. Meiosis

46. Zygotes formed

47. Albinism is a recessive trait and is caused by being homozygous recessive, aa. AA and Aa are normal individuals. If an individual who is heterozygous marries a man who is homozygous dominant, what percentage of their children will have albinism?



 48. What process is shown in the diagram to the left?



49. What phase of mitosis is occurring in this picture?



50. What phase of mitosis is occurring in this picture?

51. Dairy Farmers want cows that produce the most possible milk on their farms. They choose the cows that have produced the most milk to be the ones that get to reproduce with the bull so that the next generation of dairy cows will have these “milk-producing” genes. What is this process called?

52. Jack and Jill get married and have a child. Jack is heterozygous for the blood Type A and Jill has type AB blood. What is the chance that they will have a baby with type B blood?