

Name: Key

Date: _____

Genetics Chapter Review!

1. What is heredity? the passing of traits from parents to offspring
2. What is genetics? the science that studies the laws of heredity
3. Who is the "Father of Genetics"? Gregor Mendel what organism did he study?
pea plants

- D 4. A condensed package of DNA found in the nucleus of eukaryotic cells.
- F 5. The form of the trait that is **hidden or masked**
- J 6. The **physical characteristics** or appearance that results from the organism's genotype
- C 7. The factors that control traits
- B 8. Different forms a gene may have for a trait
- G 9. Two **identical** alleles for a given trait (AA, bb, CC, dd)
- I 10. The **genetic make-up** or alleles an organism possess
- H 11. Two **different** alleles for a given trait (Aa, Bb, Cc, Dd)
- A 12. Inherited characteristics that are controlled by genes
- E 13. The form of the trait that almost always **shows up**

- A. Traits
- B. Alleles
- C. Genes
- D. Chromosomes
- E. Dominant
- F. Recessive
- G. Homozygous
- H. Heterozygous
- I. Genotype
- J. Phenotype

For questions 14-19 write if the genotype is homozygous dominant, homozygous recessive, or heterozygous.

14. RR ho, d

15. Hh he

16. Qq he

17. ee ho, r

18. TT ho, d











19. bb ho, r

20. In red pandas, red fur is completely dominant to white fur. What genotype(s) would represent red fur?

RR, Rr

21. In tarsier monkeys, big eyes are completely dominant to small eyes. What genotype(s) would represent small eyes?

bb

Dominant Gene	Recessive Gene
Cleft Chin 	No Cleft 
Widow's Peak 	No Widow's Peak 
Dimples 	No Dimples 
Brown/Black Hair 	Blonde Hair 
Freckles 	No Freckles 

22. Allison's mother and father both have dimples however, she does not. She is worried that she was possibly switched at birth! Is it possible for two parents with dimples to have a child without?

If so... DD x DD not possible

What is Allison's mother's genotype? Dd

What is Allison's father's genotype? Dd

What is Allison's genotype? dd

	D	d
D	DD	Dd
d	Dd	dd

23. How many phenotypes are expressed in incomplete dominance? 3

$CR^R = \text{red}$
 $C^R C^W = \text{pink}$
 $C^W C^W = \text{white}$ } 3 phenotypes

24. What is codominance?

both alleles show up - both are dominant

25. What is the best example of codominance in humans? blood type

26. What genotype(s) would show cleft chin?

CC, Cc

27. What genotype would show no widow's peak?

ww

28. What genotype would show blonde hair? bb

Write the possible phenotype for questions 25-29:

29. DD Dimples

30. cc no cleft

31. Ww widow's peak

32. FF freckles

33. Bb Brown/Black hair

34. Look at the chart, how many dominant traits do you have? 3 recessive? 2

35. What does a Punnett Square show?

the probabilities of the alleles that the offspring will receive

36. What is Probability?

the possibility of an occurrence OR the likelihood that a particular event will occur

37. What is a mutation?

a permanent change in the DNA

38. What is an example of an inherited trait?

eye color, skin color, hair type, widow's peak, freckles, dimples

39. What is an example of an acquired trait?

a skill or talent that is developed, personality, etc.

40. What is an example of a harmful mutation?

Muscular Dystrophy, Cystic Fibrosis, Hemophilia

41. What is an example of a beneficial mutation?

longer beak in birds, white fur color in the Tundra

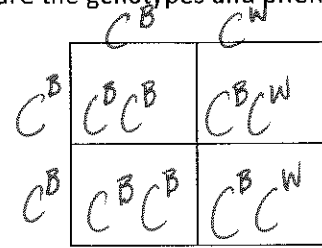
42. Chromosomes are made up of condensed

DNA. Sections of chromosomes that code for particular traits are called genes.

↓ survival rate
↑ survival rate

43. In rabbits black fur is dominant to white fur. However, there is a 3rd phenotype of grey fur which is found in heterozygous rabbits. If a blank grey rabbit is crossed with a black rabbit. What are the genotypes and phenotypes of the potential offspring?

Genotypes: $C^B C^B, C^B C^W$ Ratio: 50/50



Phenotypes: black, grey Ratio: 50/50

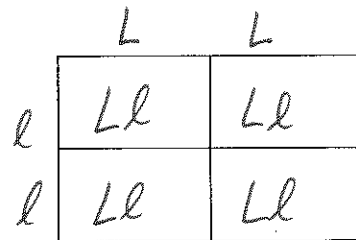
In sun bears, long tongues are completely dominant to short tongues. The mother is homozygous dominant for long tongue and the father has a short tongue. ll

44. What is the mother's genotype? LL what is the father's genotype? ll

45. Do a Punnett Square to determine their potential offspring.

Probability of long tongue? 100 %

Probability of short tongue? 0 %

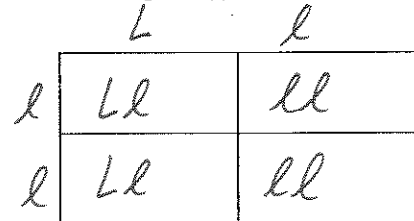


46. One of the sun bear's female offspring mates with a short tongue male. What is the genotype of the sun bear's offspring? Ll, ll

47. Do a Punnett Square to determine their potential offspring.

Probability of long tongue? 50 %

Probability of short tongue? 50 %



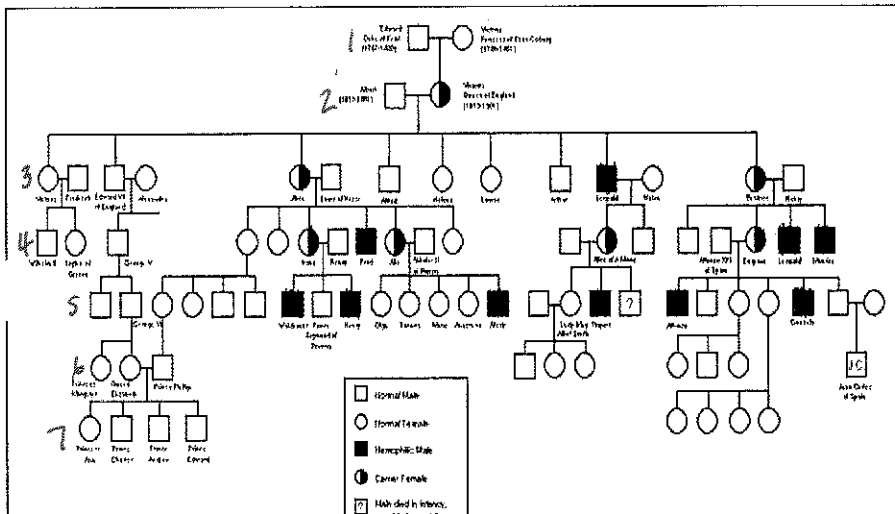
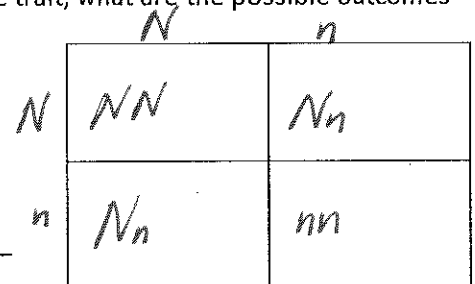
49. Normal red blood cells are dominant to sickle shaped red blood cells. If an individual has all sickle shaped red blood cells they are said to have Sickle Cell Anemia. Two parents are both carriers for the trait, what are the possible outcomes for their offspring?

Genotype of Parents: Nn

Phenotypic Results: 1 normal RBCs, 2 carriers, 1 sickle cell
25% 50% 25%

What is the advantage that carriers have? immunity to malaria

N = normal
n = sickle cell



50. What tool is that?

pedigree

51. How many generations? 7

52. What shape is male? square

53. What does a carrier female look like?



54. How many affected males? 10

55. How many carrier females? 7

