Genetics Notes

1. Genetics –
2. Trait –
3. Blending Hypothesis –
4. Gregor Mendel
5. Austrian \_\_\_\_\_\_\_\_\_\_ in 1860’s
6. Experimented with \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
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1. Mendel’s Experiments
2. Structure of pea plants – the relatively \_\_\_\_\_\_\_\_\_\_\_ structure of the pea flower petals makes it very easy for pollen from the anther to fertilize the pistil of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. Purebred –
4. Hybrid –
5. Traits are easy to see
6. Mendel studied \_\_\_\_\_ traits that only come in \_\_\_\_\_ distinct forms
7. Example: pea pods were either \_\_\_\_\_\_\_\_\_\_ or \_\_\_\_\_\_\_\_\_\_ (there were no in-between colors)
8. Short reproductive cycle – 90 days
9.
10. Mendel’s Observations
11. P –
12. F1 –
13. F2 –
14. Findings:
15. When crossing 2 different purebred parents, F1 generation were \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
16. F2 generation showed \_\_\_\_\_\_\_ of F1 trait, and \_\_\_\_\_\_\_ of other trait
17. Mendel’s Conclusions
18. Blending hypothesis was \_\_\_\_\_\_\_\_\_\_\_ – forms of a trait must \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in offspring
19. Genes –
20. Allele –
21. Dominant allele – form of a gene that is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ when two different alleles are present
22. Recessive allele – form of a gene that is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ when paired with a dominant allele
23. Chromosome Theory of Heredity – material of inheritance is carried by the \_\_\_\_\_\_\_\_\_\_\_\_\_ in chromosomes
24. Pea color is controlled by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ with \_\_\_\_\_\_ alleles – one for green and one for yellow
25. Dominant allele – \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
26. Example: Yellow is the dominant pea color and would be represented by \_\_\_\_\_
27. Recessive allele – \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
28. Example: green is the recessive pea color and would be represented by \_\_\_\_\_\_
29. Genotype – \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_)
30. Phenotype – \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_)
31. Homozygous – the two alleles in a gene are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (\_\_\_\_\_\_\_\_\_\_\_\_\_)
32. Heterozygous – the two alleles in a gene are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (\_\_\_\_\_\_\_)
33. Mendel’s Laws
34. Law of Segregation – each pair of genes \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ during meiosis
35. Law of Independent Assortment – gene pairs separate into gametes \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and independently of each other
36. Law of Dominance – the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ allele is expressed and the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ allele is hidden. The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ allele is only expressed when no \_\_\_\_\_\_\_\_\_\_\_\_\_\_ allele is present.
37. Probability – \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of an event or outcome
38. Can be measured as a \_\_\_\_\_\_\_\_\_\_\_\_ (\_\_\_\_\_\_\_), a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (\_\_\_\_\_\_\_), or a \_\_\_\_\_\_\_\_\_\_ (\_\_\_\_\_\_\_)
39. Punnett Square – \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
40. Predicts \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, not \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
41. How to make a Punnett square:
42. Make the grid

- place the \_\_\_\_\_\_\_\_\_\_\_\_\_ of one parent along the \_\_\_\_\_\_\_\_ and the \_\_\_\_\_\_\_\_\_\_\_\_\_ of the other parent along the \_\_\_\_\_\_\_\_\_\_.

 

1. Fill in the grid

- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ the parent alleles inside the boxes

 

1. Fill in the offspring

- use the Law of Dominance to determine the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of the offspring

 

1. Genotypic ratio – ratio of possible \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Phenotypic ratio – ratio of possible \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. Monohybrid cross – studying \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. Dihybrid cross – studying \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
5. Heredity in Humans
6. Pedigree – a chart that shows how a \_\_\_\_\_\_\_\_\_\_\_ and the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ within a \_\_\_\_\_\_\_\_\_\_\_\_\_\_.
7. Symbols
8. Circle – \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
9. Square – \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
10. Horizontal line between circle and square – \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
11. Not shaded – \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
12. Completely shaded – \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
13. Half shaded – \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
14. Carrier – an individual who \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ but it is not \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
15. Recessive Traits
16. It takes \_\_\_\_\_\_\_ recessive alleles for a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ trait to show up
17. Examples: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
18. Dominant Traits
19. Dominant alleles are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
20. They control many human traits

- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Disorders caused by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ alleles are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ than those caused by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ alleles
2. Example: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. Genetic Counseling
4. Genetic counselors prepare \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ for parents showing the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of passing genetic disorders on to their \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
5. Interpreting a pedigree chart
6. X-linked or autosomal? General rule:
* If \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, it’s x-linked
* If \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, it’s autosomal

X-linked examples:

1. Dominant or recessive? General rule:
* If dominant, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* If recessive, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
1. Beyond Mendel’s “Laws”
2. Incomplete dominance - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Example: \_\_\_\_\_\_\_\_ flowers x \_\_\_\_\_\_\_\_\_\_\_\_ flowers = \_\_\_\_\_\_\_\_\_\_\_ flowers

1. Codominance - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Example: \_\_\_\_\_\_\_\_ hair in cows x \_\_\_\_\_\_\_\_\_\_\_ hair in cows = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_hair

1. Multiple alleles –

Example: