

OYO'S 8

8.1. a. wrinkled
b. smooth
c. smooth

8.2. YY, Yy

8.3. yy

8.4 Genotype: SS. Homozygous. Phenotype: smooth peas.

8.5 50% will have the Pp genotype, and 50% will have the pp genotype

8.6 The no-tail allele is dominant. 3, 4 ~~are~~ have the Nn genotype. 2 has the nn genotype. 1 has the Nn genotype

8.7 SY, Sy, sY, sy

8.8 pleiotropy

8.9 AB 25%, A 25%, B 25%, O 25%

8.10 50% will be Rh positive, 50% will be Rh negative

Study Guide 8

- 1. a. **true breeding**: If an organism has a certain characteristic trait, is always passed on to its offspring, we say that its organism bred true with respect to that characteristic
- b. **Allele**: One of a pair of genes that occupies the same position on homologous chromosomes
- c. **Genotype**: Two letter set that represents the alleles an organism possesses for a certain trait
- d. **phenotype**: The observable expression of an organism's genes
- e. **Homozygous genotype**: A genotype in which both alleles are identical
- f. **Heterozygous genotype**: A genotype with 2 different alleles
- g. **dominant allele**: An allele that will determine phenotype
- h. **Recessive allele**: An allele that will not determine the phenotype unless the genotype is homozygous in that allele
- i.
 - 1. The traits of an organism are determined by its genes
 - 2. Each organism has two alleles that make up the genotype for a given trait
 - 3. In Sexual reproduction, each parent contributes **only one** of its alleles to the offspring
 - 4. In each genotype, there is a dominant allele, if it exists, in an organism, the phenotype is determined by that allele
- j. **Pedigree**: A diagram that follows a particular phenotype through several generations
- k. **Monohybrid cross**: A cross between two individuals concentrating on only one definable trait
- l. **Dihybrid cross**: A cross between 2 individuals, concentrating on 2 definable traits

- M. **Autosomes**: Chromosomes that do not determine the sex of an individual
- N. **Sex chromosomes**: Chromosomes that determine the sex of an individual
- O. **Antigen**: A protein that, when introduced in the blood, triggers the production of an antibody
- P. **Autosomal inheritance**: inheritance of a genetic trait not on a sex chromosome.
- Q. **Genetic disease carrier**: A person who is heterozygous in a recessive genetic disorder
- R. **Sex-linked inheritance**: inheritance of a genetic trait located on the sex chromosomes
- S. **Mutation**: a radical chemical change in one or more alleles
- T. **Change in chromosome structure**: a situation in which a chromosome loses or gains genes during meiosis
- U. **Change in chromosome number**: a situation in which abnormal cellular events in meiosis lead to either none of a particular chromosome in the gamete or more than one chromosome in the gamete

2. ~~YY~~ a. YY: yellow
b. Yy: yellow
3. c. yy: green
Meiosis
- 4.

	A	A
A	AA	AA
a	Aa	Aa

50% have the AA genotype and 50% have the Aa genotype.
100% have the axial flower phenotype.

5.

	R	r
r	Rr	rr
r	Rr	rr

50% can roll their tongue

6. The genotype is Bb.

7. N is the dominant allele. 1 and 2 have the NN genotype. 3 and 4 do to.

8. 100% will have the SsYy genotype and the smooth yellow phenotype

9. Smooth yellow: (SSYY, SsYy, SsYy, SsYY) 55%

Smooth green: (SSyy, Ssyy) 18%

wrinkled yellow: (ssYY, ssYy) 18%

wrinkled green: (ssyy) 6%

10. 50% females will be white, and 50% will be white.

11. $X^R Y$

12. change in chromosome number

13. recessive

14. Men have only one allele

15. Because everyone is different

16.

AB

AO	AB
Oab	ab

ab

A 50% B 50%

17. BO or BO, sp.

18. Polygenic inheritance

Notes

8

PHENOTYPE: what you look like

GENOTYPES: actual genes

True breeding: If an organism has a certain characteristic that is always passed on to its offspring, we say that this organism bred true with respect to that characteristic.

ALLELE: one of a pair of genes that occupies the same position on homologous pairs

GENOTYPE: two-letter set that represents the alleles an organism possesses for a certain trait.

PHENOTYPE: the observable expression of an organism's genes.

[**HOMOZYGOUS GENOTYPE**: A genotype in which both alleles are identical

[**HETEROZYGOUS GENOTYPE**: A genotype with 2 different alleles.

DOMINANT ALLELE: An allele that will determine phenotype if just one is present in the genotype

RECESSIVE ALLELE: An allele that will not determine the phenotype unless the genotype is homozygous in that allele

[**MENDEL PRINCIPLE 1**: The traits of an organism are determined by its genes.

[**MENDEL PRINCIPLE 2**: Each organism has 2 alleles that make up the genotype for a given trait.

[**MENDEL PRINCIPLE 3**: In sexual reproduction, each parent contributes ONLY ONE of its alleles to the offspring

[**MENDEL PRINCIPLE 4**: In each genotype, there is a dominant allele. If it exists in an organism, the phenotype is determined by that allele.

~~Pedigree~~ **PEDIGREE**: A diagram that follows a particular phenotype through several generations

MONOHYBRID CROSS: a cross between 2 individuals, concentrated on only one definable trait.

DIHYBRID CROSS: A cross between 2 individuals, concentrating on 2 definable traits

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SEX-LINKED INHERITANCE: Inheritance of a genetic trait located on the sex chromosomes

MUTATION: A radical chemical change in one or more alleles

CHANGE IN CHROMOSOME STRUCTURE: A situation in which a chromosome loses or gains genes during meiosis.

CHANGE IN CHROMOSOME NUMBER: A situation in which abnormal cellular events in meiosis lead to either none of a particular chromosome in the gamete or more than one chromosome in the gamete.