Name: _____ Block _____ Date _____

Phenotypes and Genotypes (Complete Dominance)

1. For each genotype below, indicate whether it is heterozygous **(He),** homozygous dominant **(HoD),** or homozygous recessive (HoR).

AA _____	Ee ____	Ii _____	Mm _____
Bb _____	ff ____	Jj _____	nn _____

2. For each of the **genotypes** below determine what **phenotypes** would result.

Purple *flowers are dominant to* ***white*** *flowers.*

PP_____

Pp_____

pp_____

Round *seeds are dominant to* ***wrinkled*** *seeds.*

RR_____

Rr_____

rr _____

3. For each **phenotype** below, list ALL the possible **genotypes**

*Straight (**S**) hair is dominant to curly (**s**).*

straight ____ curly _____

*Pointed (**P**) heads are dominant to round (**p**).*

pointed _____ round _____

4. Below each of the following words are choices. Circle the choices that are examples of each term.

- Homozygous dominant

  AA Gg KK uu Rr TT

- Homozygous recessive

  ee Ff HH qq Uu ww

- Heterozygous

  AA Dd EE Jj RR Ss

- Displays the dominant phenotype

  aa Gg KK rr Oo Tt

Comprehension Questions

1. Explain how a **gene** is related to an **allele**.

2. A person has **two copies of every gene** in their **genome**. Identify the **source** of each copy.

3. Describe the difference between a **dominant** allele and a **recessive** allele.

4. Describe the difference between a **homozygous** genotype and a **heterozygous** genotype.

5. Explain the relationship between **genotype** and **phenotype**.

6. Identify the **molecule** that is directly responsible for an organism's **genotype**. In other words, where is an organism's genotype stored?

7. Identify the type of **molecule** that is **directly** responsible for an organism's **phenotype**.

8. Identify the **scientist** responsible for discovering how inheritance and genetics works, and identify what **model organism** he did experiments with.

9. When an organism reproduces, how many of its alleles does it pass on to each offspring?

10. Normal red blood cells (R) are dominant to sickle-shaped red blood cells (r). If a father carries one allele for sickle cell anemia (genotype Rr), what are the chances that he will pass this allele to each child? Express your answer as a ratio or a percentage, and explain your answer.