

# Genotype vs. Phenotype: Building a Model

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Name: \_\_\_\_\_ Date: \_\_\_\_\_

## LEARNING OBJECTIVE

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Student will be able to build a physical model distinguishing genotype (allele combination) from phenotype (observable trait).

## MATERIALS NEEDED

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- Pipe cleaners or yarn in 2 colors (or 2 colors of beads/buttons)
- index cards
- pencil
- tape

## HANDS-ON ACTIVITY

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1. Choose 2 colors to represent a dominant allele (e.g., purple = P, purple flowers) and a recessive allele (e.g., white = p, white flowers).
2. Build 3 physical models using your pipe cleaners/beads: one representing PP, one Pp, and one pp (each model uses 2 pieces to represent the 2 alleles for that trait).
3. Label an index card under each model with its genotype (PP, Pp, pp) and its phenotype (purple flower or white flower).
4. Sort the 3 models into 2 groups based on phenotype only (not genotype) and note which genotypes end up in the same group.
5. Write a one-sentence rule explaining the relationship between genotype and phenotype based on your sorting.

## QUESTIONS

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1. **Which genotypes ended up in the same phenotype group, and what phenotype did they share?**
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2. **What is the difference between genotype and phenotype, in your own words?**
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3. **Can two organisms with different genotypes have the same phenotype? Use your models as an example.**
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4. **Could two organisms with the same phenotype ever produce offspring with a different phenotype? Explain using PP and Pp.**
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