

# Case Details

**Case Title:**

Heredity

**Author(s):**

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**Grade Level(s):**

Middle School

**Subject(s):**

Life Science

**Summary:**

Jason and Rochelle are planning to begin a family. In the midst of the excitement, the question of the appearance of the child arises. One parent believes that they have dominant genes based on their gender while the other disagrees. There is also a question of how cells reproduce. Who is right and who is wrong? It's up to you to find out!

**Suggested Citation:**

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[http://www.cse.emory.edu/cases/casedisplay.cfm?case\\_id=2567](http://www.cse.emory.edu/cases/casedisplay.cfm?case_id=2567)

**Learning Objectives:**

1. Define the following terms: Gene, Chromosome, Trait, Chromatids, Alleles, Genotype, Phenotype, Mitosis, Meiosis
2. Hypothesize the results of a cross between a heterozygous dominant trait and a recessive trait.
3. Explain the role of genes and chromosomes in the process of inheriting a specific trait.
4. Describe the DNA molecule and identify the main components.
5. Differentiate between a dominant trait versus a recessive trait
6. Contrast an individual's Genotype from their Phenotype
7. Compare and contrast the processes of Mitosis and Meiosis

**National/State Standards:**

*Georgia Performance Standards*S7L2. Students will describe the structure and function of cells, tissues, organs, and organ systems. (NSES Content Standard C)  
a. Explain that cells take in nutrients in order to grow and divide and to make needed materials.

S7L3. Students will recognize how biological traits are passed on to successive generations. (NSES Content Standard C)

- a. Explain the role of genes and chromosomes in the process of inheriting a specific trait.
- c. Recognize that selective breeding can produce plants or animals with desired traits.