

Inheritance

- 6.1 [How Cells Reproduce](#)
- 6.2 [Cell Division and Genetic Diversity](#)
- 6.3 **Traits and Inheritance**
- 6.4 [First Law of Inheritance](#)
- 6.5 [Second Law of Inheritance](#)
- 6.6 [Beyond Mendel](#)



6.3 Traits and Inheritance

We look like our parents because we inherit our parents' genes. But why do we resemble our parents in certain ways but not others? For example, why do we have our mom's dimples but not her curly hair? Why do brown-eyed parents sometimes have a blue-eyed child? And, strangest of all, why do traits sometimes skip generations? For example, a crook in Grandpa's nose might not show up in any of his children and then suddenly appear in his granddaughter. How can we explain that? The 19th century Augustinian monk, Gregor Mendel (Figure 6.9) discovered the answers to these questions. Mendel did not make his discoveries by studying people, though. He studied peas.



FIGURE 6.9

Gregor Mendel (1822 – 1884) was the founder of modern genetics. Here, he is examining a plant.

Mendel bred pea plants, which vary in a number of traits. There are round or wrinkled peas, yellow or green peas, purple or white flowers, and other variations. Mendel started by finding plants that “bred true,” meaning these plants always produced offspring that looked like them. He then bred two plants that differed in a single trait— for example, a round-pea plant and a wrinkled-pea plant.

What did Mendel find? Mendel found that when he bred two plants that differed in a single trait, all of the offspring resembled *one* of the two parents. For example, when a round-pea plant was bred with a wrinkled-pea plant, all the offspring had round peas. Traits that were expressed in the offspring (such as round peas) Mendel called *dominant*. Traits that were not expressed in the offspring (such as wrinkled peas) Mendel called *recessive*. In every pair of traits Mendel looked at, one was dominant and the other was recessive (Figure 6.10). Humans have dominant and recessive traits too (Figure 6.11).









	Seed shape	Seed color	Flower color
Dominant trait	Round 	Yellow 	Purple 
Recessive trait	Wrinkled 	Green 	White 

FIGURE 6.10

Mendel bred pea plants that varied in a number of traits. For every pair of traits he looked at, one trait was dominant and the other was recessive.

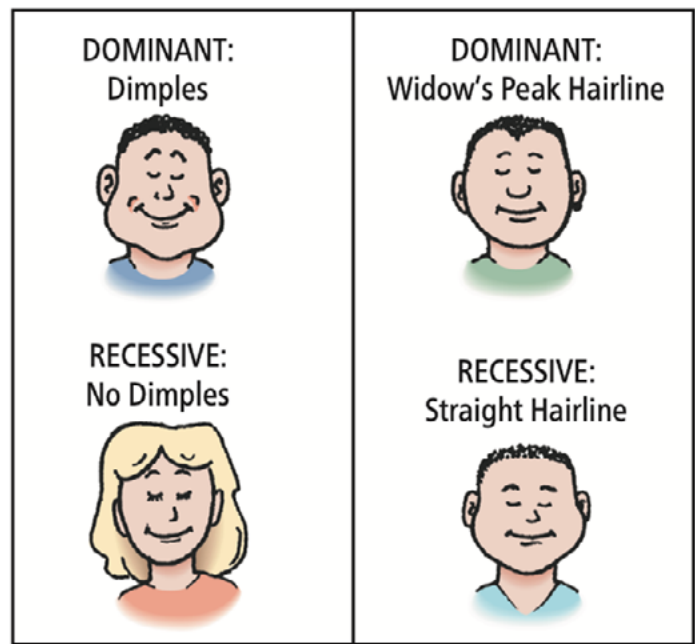


FIGURE 6.11

Dimples are a dominant human trait. So is a hairline that comes to a peak in the middle—a widow's peak hairline.

READING CHECK

When Mendel bred green-pea plants and yellow-pea plants, all of the offspring had yellow peas. Which trait is dominant? Which trait is recessive?

CHECK YOUR ANSWER

Yellow peas are dominant. Green peas are recessive.

