Life Science 7

Chapter 5-1
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"Mendel and His Peas"

Objectives

- Explain the relationship between traits and heredity.
- Describe the experiments of Gregor Mendel.
- Explain the difference between dominant and recessive traits.

What is Heredity?

- **heredity**: _____.
- Some traits can be easily traced (widow's peak, earlobe attachment, etc), while others are more challenging (eye color, skin color, hair color)
- Gregor Mendel performed the first recorded experiments in an attempt to explain how heredity worked.

Gregor Mendel

- entered a monastery at age 21 in Brunn, Austria, where he tended the garden
- Used his training in math and science from the _____ to study inheritance patterns in the _____ plant
- Mendel looked at several varieties of pea plants when doing his experiments
- Pea plants turned out to be a good choice for several reasons
  - 1) _____ (grow quickly, are **self-pollinating**)
  - 2) traits are found in _____
  - 3) traits show _____

Mendel's Experiements

- Mendel is known for his excellent experimental designs, and record keeping
- 1st Step: Mendel produced **true-breeding** plants for the trait he was interested in
  - **true breeding**- _____ _____
  - To produce pure plants, he allowed a plant to self-fertilize
    - **self-pollination**- _____

- 2nd Step
  - Mendel crossed two plants _____ from the parent generation
  - Mendel kept track of the traits of each plant in the second generation

- 3rd Step
  - Mendel crossed two members _____ ("children" of the first plants)
  - Mendel again kept track the traits of all of the members of the next generation (3rd generation)

- Mendel repeated these three steps thousands of times, on each of the 7 traits he observed

Mendel's Results and Conclusions

- After crossing the 1st generation, _____ of the 2nd generation plants had _____ of the traits
  - ex: if you crossed a true-breeding tall plant with a true-breeding short plant, all of the offspring were _____

- For the 3rd generation plants, the trait that disappeared in the 2nd generation _____ _____

Mendel's Results: 3rd Generation

Principle of Dominance and Recessiveness

- each trait had two "factors"
- one "factor" masked the other factor in the F_1 generation- _____
- the other "factor" was masked by the dominant factor- _____