5. Heredity

Starter Quiz ·

AP Biology Name: _____ Score: _____

1. What does **meiosis** produce?
   - ☐ gametes (sex cells) with half the chromosome number
   - ☐ two identical body cells
   - ☐ proteins
   - ☐ ATP
2. In **crossing over**, what happens?
   - ☐ matching chromosomes swap sections of DNA
   - ☐ the cell stops dividing
   - ☐ DNA is destroyed
   - ☐ the cell makes ATP
3. An **allele** is…
   - ☐ one version of a gene
   - ☐ a type of protein
   - ☐ a kind of cell
   - ☐ a whole chromosome
4. In **incomplete dominance**, a red and a white flower can give offspring that are…
   - ☐ always red
   - ☐ always white
   - ☐ blue
   - ☐ pink – a blend of the two
5. An organism's **phenotype** is shaped by…
   - ☐ neither
   - ☐ only its genotype
   - ☐ both its genotype and its environment
   - ☐ only its environment
6. Meiosis involves a single division, producing two cells from one.

   ☐ True ☐ False

7. Genetic diversity helps a population survive changing conditions.

   ☐ True ☐ False

8. The set of alleles an organism carries is its _____ (its genetic make-up).

   _____

9. Every gene has exactly two possible alleles.

   ☐ True ☐ False

10. Human height depends on both genes and environment (such as nutrition).

    ☐ True ☐ False

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Answers ·

AP Biology

1. **gametes (sex cells) with half the chromosome number**

   Meiosis makes **gametes** – sex cells with half the normal chromosome number.

2. **matching chromosomes swap sections of DNA**

   In **crossing over**, homologous chromosomes exchange matching sections, creating new gene combinations.

3. **one version of a gene**

   An **allele** is one version of a **gene** – for example, a version for brown eyes or blue eyes.

4. **pink – a blend of the two**

   In **incomplete dominance** neither allele fully dominates, so the heterozygote is a blend – pink.

5. **both its genotype and its environment**

   The **phenotype** is the result of the **genotype** *and* the **environment** working together.

6. **False**

   False. Meiosis has two divisions, meiosis I and meiosis II, producing four haploid cells from one.

7. **True**

   Variety means some individuals may cope with a new challenge – the raw material for evolution.

8. **genotype**

   The **genotype** is the alleles present; the **phenotype** is the trait you can see.

9. **False**

   False. A person carries at most two alleles, but a population can have more: the ABO blood group gene has three (A, B and O).

10. **True**

    Genes set a possible range for height; nutrition and health decide where within it you end up.