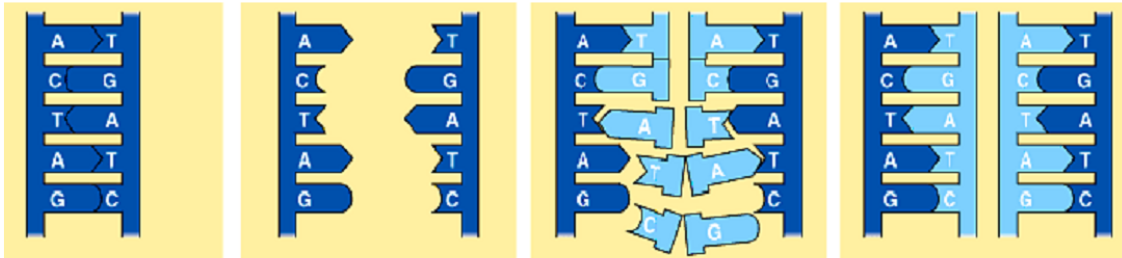


**Warm-Up: DNA Base Pairing Worksheet**

When a cell copies a DNA molecule:

1. DNA is unzipped.
2. The complementary bases are added to each template strand.
3. The 2 new strands are proofread for errors.



When a cell copies its DNA (replication), the original DNA ladder is broken apart and new nucleotides are added to the center. This creates two exact copies, each one made from half the original DNA molecule.

- DNA polymerase (the enzyme which builds DNA) will only attach bases which match with the original strand of DNA.
- In DNA replication, **Adenine and Thymine** will bond together and **Cytosine and Guanine** will bond together.
- When creating the matching strand the following pairing rules must be used:

A? T  
C? G

Directions: Use the base pairing rules above to figure out the sequence of the new strand of DNA for the original strands below.

**1. AACGTACGATCGATGCACATGCATGGCTACGC**

**2. CCCGGGTATGCATGTACGTACGTCGTATATCG**

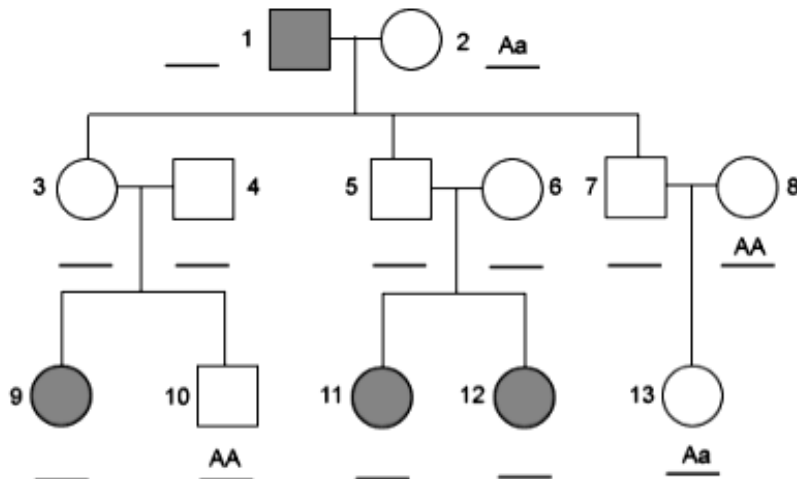
**3. CGCGATCGAGCGATCGACGAATGCCTAGTTTT**

**4. TTAAACGAGCTGCTAGCTATTTTTAAAACCCCG**

**5. CCGCTTTCGCTATTATAAAAAGGGCTATAACTA**

# AUTOSOMAL; PEDIGREES WORKSHEET

1. Cystic Fibrosis is an autosomal recessive disorder where mucus develops in the lungs, the liver and the pancreas. Below is an autosomal pedigree tracing the passing of the cystic fibrosis gene through three (3) generations. Write in the genotypes on the line next to/below each individual.



*For all phenotype questions below, answers include: normal, carrier, cystic fibrosis.*

- 2) What is the phenotype of individual 2? \_\_\_\_\_
- 3) What is the phenotype of individual 3? \_\_\_\_\_
- 4) What is the phenotype of individual 5? \_\_\_\_\_
- 5) What is the phenotype of individual 7? \_\_\_\_\_
- 6) What is the phenotype of individual 10? \_\_\_\_\_
- 7) What is the phenotype of individual 11? \_\_\_\_\_
- 8) Why did individual 9, 11, and 12 get the disorder but their parents did not have the disorder?  
\_\_\_\_\_

9) Albinism (Albino) causes a deficiency of pigmentation in skin, hair, and eyes. Albinism is recessive and autosomal. When a single gene affects many traits, like albinism, it is called pleiotropy. Below is an autosomal pedigree tracing the passing of the albinism gene through 3 generations. Write in the genotypes on the line next to / below each individual.

