

## **Chapter 12**

### **Engage/Explore: The Stuff of Life**

In Chapter 11, you studied the importance of inheritance for the continuity of species. At this point, you should be able to explain the relationship between genotype and phenotype. The key to all of these processes is deoxyribonucleic acid, DNA.

In this activity, you will begin to look more closely at DNA. You will need to understand the complex role that DNA plays in all living systems. This will help you appreciate the impact that new genetic technologies are having on biological research, medicine, public policy, and the judicial system. Because those technologies have the potential to affect the lives of all citizens, and understanding of DNA and its molecular function is now everyone's concern, not just scientists.

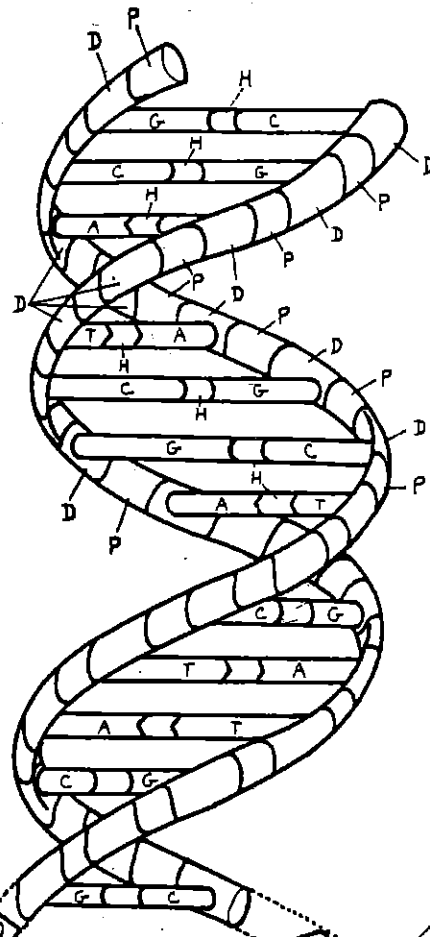
#### **Procedures**

1. Read *A Royal Tragedy* (continued) on p. 449-450.
2. Answer the following questions;
  - a. Which members of the Russian royal family were supposedly executed on the evening of July 17, 1918? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
  - b. What did the executioners do to prevent the bodies from being found and identified? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
  - c. Why was the original discovery of the possible grave not reported to authorities in 1978? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
  - d. How did researchers intend to confirm the identities of the skeletons? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
  - e. Explain how the inheritance of mitochondrial DNA differs from the inheritance of chromosomal DNA? \_\_\_\_\_  
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\_\_\_\_\_  
\_\_\_\_\_
  - f. What did scientists do to prove that the skeletal remains belonged to the members of the Russian royal family? \_\_\_\_\_  
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\_\_\_\_\_

# THE DOUBLE HELIX.

THE DOUBLE HELIX

SIMPLIFIED STRUCTURE.  
 UPRIGHTS/BACKBONE.  
 DEOXYRIBOSE.  
 PHOSPHATE.  
 RUNGS/BASE PAIRS.  
 ADENINE<sub>A</sub>  
 THYMINE<sub>T</sub>  
 CYTOSINE<sub>C</sub>  
 GUANINE<sub>G</sub>  
 HYDROGEN BOND<sub>H</sub>



## STRUCTURAL FORMULA.

