## Student Worksheet LSM 6.3-5

**Additional Activity: Switched at Birth! DNA Fingerprinting: An Application**

Although a rare occurrence, cases of babies switched at birth in a hospital have made the news in the past. Since an individual’s DNA sequence is unique, with the exception of identical twins, DNA fingerprinting is a reliable method used to deter- mine the parents of a given baby. DNA fingerprints can be derived from restriction fragment-length polymorphism analysis or using the polymerase chain reaction with variable number tandem repeats. In this activity, you will analyze the results of a DNA fingerprint conducted on three babies and three sets of parents to deter- mine which baby belongs to which parent.

### Materials

photocopy of worksheets pencil ruler

### Procedure

**1.** Compare the bands of each set of parents to each of the babies and determine which baby belongs to which set of parents. Line up the bands and illustrate which bands each baby inherited from its mother and from its father.

Couple A M F

Couple B M F

Couple C M F

Baby 1

Baby 2

Baby 3

**Figure 1**

DNA fingerprint data obtained from three sets of infants and three sets of parents

*(continued)*

 Chapter 6 Biotechnology **173**

### Analysis and Synthesis

1. Identify which baby belongs to which set of parents.
2. Explain why not all the bands in the mother’s or father’s profiles have a counterpart in the baby’s DNA profile.
3. List other examples where DNA fingerprinting could be used to identify an individual.
4. Explain why blood typing may not be a viable method of determining which baby belongs to which parent.
5. Identify the largest DNA fragment on the gel. Identify the smallest DNA fragment on the gel.