UTI Instructions: Inheritance Intrigue

Introduction:
In this activity, students solve a case of unclear heredity. Using three lines of evidence, students create the best possible solution. Students practice the inquiry skill of formulating and revising scientific explanations and models using logic and evidence.

Procedure:
Give a very short introduction to the activity, explaining that students will be looking at multiple lines of evidence to solve an inheritance case. If appropriate, have students write down two or three general rules of inheritance and have them share with neighbors. This strategy allows students to begin thinking about the problems to come.

Divide students into five equal size groups. Distribute the student handouts and gel cards (those with "Smithson" DNA). Allow students a few minutes to read the handout and begin examining the first gel. Provide encouragement to any teams that are slow to start or appear to be having difficulty. Answer student questions with a question (for example Student "What do these bars mean?", UTI "What do your team members think the bars represent?"). When teams are done with their first gel, give them the matching second gel (same locus). As teams finish with the second gel, encourage teams to incorporate the allele probabilities into their analysis.

After each team is finished with both the gel and the probabilities, have one member of each team report on the most likely daughter from their set of individuals and provide their reasoning. After each team reports, it should be clear who the true daughter is. Have students write their final paragraph summarizing this information, then consider the alternative arguments that might be presented by opposing counsel. To summarize, ask two or three students to volunteer a general rule of inheritance or genetics that they examined in the activity. Administer the individual accountability if directed by your instructor.