

CSI (Crime Scene Investigation)

Summary

Students will use a model of DNA electrophoresis to solve a "crime" in their classroom.

Time Frame

1 class periods of 70 minutes each

Group Size

Individual

Materials

- [grid for transparency](#)
(attached)
 - [student worksheet](#)
(attached)
- water soluble pens (vis a vis work best)
filter paper or coffee filters
beakers
water
5 ft of adding machine tape
overhead projector
metric ruler
scissors

Instructional Procedures

Hook the students by setting up a "crime scene" with a ransom note written in pen. A piece of the note could be analyzed using paper chromatography to match a pen found on a suspect. Show students how a strip of filter paper can be cut from a circle, a point put on one end, a dot of ink placed near the end of the point and the point just barely touching water in the bottom of a beaker.

The ink will travel up the filter paper in much the same way that fragments of DNA travel through a gel in electrophoresis. They will separate into bands of different colored pigment. The Smallest molecules will be on the top.

Have the student use different pens and set up several strips in a beaker on their table. It takes about 5 minutes for the pigments to move so you may wish to read the intro to the lab during that time.

Finish the chromatography by comparing results at each table and discussing if the results would convict a person of a crime or just provide circumstantial evidence. There are a lot of people carrying pens these days.

Read the introduction and procedures with the students. Show where materials are and ask students to fill in their data as they finish on the overhead transparency.

Make up a story about the crime. Perhaps a threatening letter concerning the quality of school lunch has been sent to the school and the person licked the envelope to close it. (The World Trade Center bombing was solved this way) The school crime lab analyzed the DNA and is going to match it to a student.

This might be a good place to discuss the rights people have to keep their DNA to themselves. Has just cause been established to test all the students?

As students finish, secretly copy one students' data into the suspects' column. The students should be able to easily see that only one person in the room has that DNA.

Bibliography

Lesson Design by Jordan School District Teachers and Staff.

Authors

[Utah LessonPlans](#)